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ABSTRACT

Physical education and research programs, and recreational and athletic facilities, in Yugoslavia, Sweden, Denmark, Germany, England, and the U.S.S.R. are examined by two faculty members from the University of Alberta. This publication is an abridgement of their report on European approaches to physical education and recreation, giving their observations and the philosophy behind physical education in the countries visited, and listing practices and policies that could benefit Canadians. Each country visted is discussed in terms of general background, philosophy of physical education, recreational and sports organizations, research, teacher training, organization of sports, facilities, and general recommendations, Following are some of the features that have met with success in Europe and are summarized as recommendations for Canadians: (1) Establishment of a national training center for recreation leaders and coaches; a federal training camp for athletes and representative teams; a national research institute in physical education and sports medicine; and a national research institute to study present facilities. (2) Creation of a sports secretariat for all of Canada. (3) Initiation of an awards system for all adults and children, and greater promotion of provincial and national competitions for all age categories. (4) Development of a system of coaches paid by the federal government and working on a nationwide basis. (5) The introduction of two European sports--orienteering and European handball-- to Canadians, and active promotion of both activities. (6) The provision of extensive playing fields for school and community use. (7) The launching of a national study aimed at the development of outdoor facilities that would encourage Canadians to make use of their scenic terrain. (8) Several features apply particularly to schools: encouragement of provincial and national sports schools; realistic provincial standards for facilities; greater emphasis on elementary school physical education; and development of small, inexpensive swimming pools for elementary school use. (MM)

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PHYSICAL EDUCATION AND RECREATION IN EUROPE

ED127298

M.L. HOWELL

AND

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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PHYSICAL EDUCATION AND RECREATION IN EUROPE

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PHYSICAL EDUCATION AND RECREATION IN EUROPE

INTRODUCTION

The Department of National Health and Welfare has published this study of European approaches to physical education and recreation in the hope that it will be helpful to physical educators and others who are interested in these fields.

Two members of the Faculty of Physical Education at the University of Alberta -- Dr. M.L. Van Vliet, Dean of the Faculty, and Dr. M.L. Howell, Chairman of the Graduate Committee -- undertook a two-month study tour in the summer of 1963, with the aid of a special fellowship from the Fitness and Amateur Sport Directorate. They examined physical education and research programs, and recreational and athletic facilities, in Yugoslavia, Sweden, Denmark, Germany, England and the U.S.S.R.

This publication is an abridgement of their report. In it they tell what they saw, discuss the philosophy behind physical education in the countries they visited, and list practices and policies that could benefit Canadians.

1. YUGOSLAVIA

GENERAL BACKGROUND

Yugoslavia, the largest country in the Balkan peninsula, has a pattern of living more central European than Mediterranean. Its population is about the same as Canada's. It is a country of diversities: its climate is severe, with very cold snowy winters and hot rainy summers; its geography varies from the flat Parmonian Lowland to the precipitous Slovene Alps; its economy is based on extensive mining, fishing, agriculture and industry.

The educational system in Yugoslavia has taken great strides since World War II, particularly since 1954. In that year, the Federal People's Assembly of Yugoslavia initiated a study of the country's system of education. This study resulted in proposals for reform of the system, and a delineation of its aims.

PHILOSOPHY OF PHYSICAL EDUCATION

In a government publication called The Elementary School in Yugoslavia[1], the Federal Institute of Educational Research outlines the philosophy behind physical education, particularly in the elementary school:

"Physical education includes all those planned influences which adults exert on children in order to develop them into healthy, strong, robust, good and agile persons, capable of developing and defending their socialist homeland; physical education, in fact, includes all work undertaken in an organized manner to promote the physical development of children and youth in harmony with the interests of the socialist community and all of its members individually.

"The aim of physical education is to enable children to develop their physical abilities; but, at the same time, it must also exert a favourable influence on their intellectual, moral, aesthetic and technical education. The tasks of physical education emphasize the necessity to improve children's health, to assist their normal bodily development, and to train them in various movements. Physical education also acts positively on the general development of pupils.

"Influencing the correct development of children's mental powers (thinking, memory, imagination, etc.), well-planned physical education has a great contribution to make to their intellectual education; it helps to improve the posture of the body, to promote a feeling for harmonious and aesthetically-pleasing movement, etc., developing - through games, sports and other forms of physical exercises - such virtues as devotion to duty, honesty,

1 Federal Institute of Educational Research. The Elementary School in Yugoslavia. Belgrade: 1960. 265 pp.

comradeship, discipline, etc; furthermore, it contributes to the moral development of children. Finally, it improves the working ability of pupils, because it strengthens the children's physique and so enables them to endure various exertions and to carry out various working operations without excessive exhaustion...

"Physical and health education is given a special place in the new school. It is, therefore, included in the curriculum as a special subject throughout the elementary school course. But it would be wrong to assume that the school can properly influence the physical development of children, develop among them an appreciation of the need for personal hygiene, healthy living and ways of preserving health only through physical training and health education lessons. The school must develop varied forms of work in the physical and health education of children, plan lessons in corrective gymnastics, organize excursions, games and sports contests among children, etc...

"Leisure-time activities, undertaken in an interesting way acceptable to pupils, supplement classroom instruction and enrich the life of the school. These activities may be very useful and they help to introduce pupils to cultural, technical, sporting, productive and other practical activities. They may be organized, apart from by the school, by children's societies (pioneer organization, popular mechanics clubs, youth section of sports associations, etc.), and by other social organizations which seek to promote the education of children. In any case, the school must take a proper interest in these activities and correlate them to the greatest possible extent."

So we see the emphasis on physical education as a means of <u>enriching</u> the life of the individual. It is aimed not only at developing the pupils' physical abilities; it must also "exert a favourable influence on their intellectual, moral, aesthetic and technical education."

RECREATIONAL AND SPORTS ORGANIZATIONS

Federal Fitness Commission

Yugoslavia's Federal Fitness Commission is concerned chiefly with physical education for the student and, to a lesser degree, with industrial recreation. The main committee has fifteen non-paid members, representing various organizations such as schools, sports societies and youth groups.

Industrial recreation is highly developed, with many sports societies created for this purpose. The commission's work in this field is aimed at the working man who is not able to join one of these societies or cannot participate fully. In these cases, the commission works toward providing other outlets for his participation.

A national recreation school graduated its first class in 1963. This school also provides federal training for coaches.

The commission has created an award system to stimulate competition. Under this system, a competitor may obtain one medal a year by reaching a set standard in at least six activities. Physical fitness testing and awards also form an integral part of school curricula with progressive tests aimed at encouraging the children.

Yugoslav Union of Organizations for Physical Culture

All sports in the country come under the jurisdiction of this union, which is headed by an honorary president; a general secretary has the effective leadership of the union. Each sport has its own president and paid secretary and each of Yugoslavia's six states has a similar federation.

Participation in sports is generally on four levels: federation, republic, town and club. The federation competition is for top athletes who are aiming at international competition; the republic is for the athlete who is not good enough for international competition, but still above average; the town and the club are for general participation.

Thirty-four sports organizations come under this Union, and all clubs are members. The overall committee consists of 34 members, representing each organization and with at least one coming from each republic. Eleven of these members are elected as an executive.

Athletics

Athletics, or track and field, is a typical sports organization, headed by a president and secretary. Funds come from the federal government and are distributed by this organization to the 120 athletic clubs and other groups under it. The main sports have full-time paid secretaries and national coaches. These people are housed in government buildings.

Officials point out that there is no professional sport in Yugoslavia. Teams are trained before particular competitions but none are paid, year-round players. For example, the football team which went to the 1964 Olympics entered serious training only about a month before the competition, although it did play some exhibition games the previous fall.

Olympic candidates take their holidays at a sports camp, after which they go into serious training. Each candidate is given three fitness tests before the Games--at the beginning, the middle and the end of his training. If the athlete shows no improvement through these tests, he is dropped as a potential Olympic competitor.

In the summer of each Olympic year, highly competitive national championships are held. During the summer, candidates train by running over 1500-metre mountain courses. Officials also feel it is essential to simulate Olympic conditions as much as possible.

There are 120 athletic clubs in Yugoslavia which are intended for the use of the average athlete and thus do not attempt to provide intensive competition. However, there are exceptions such as Belgrade's Red Star club which has about 25 interclub competitions. This club employs two paid coaches and each athlete makes from 10 to 25 competitive appearances annually.

Yugoslavia's weather is similar to Canada's, but training in athletics continues through the winter. Distance runners train outdoors.

It is interesting to note that, although Yugoslavia has 14 or 15 stadia throughout the country, facilities are very limited at the universities, and consequently the standard of athletics in the universities is low.

Yugoslav Institute for Physical Fitness

The Institute is divided into five main sections: sport, physical education in the schools, sports medicine, facilities and recreation. It is a national centre which co-ordinates all government programs in these areas.

In sport, the Institute has separate programs for pre-school children, for those still at school, and for those who have left school. Only fifteen to twenty per cent of the universities have some kind of sports program. Physical education, at the universities where it is offered, is usually available on a twice-a-week basis.

Current programs have been designed to be effective at least over the next 15 years. Approximately 60 to 70 per cent of the planned programs are currently in effect. As in many countries, adaptations have been necessary because of a lack of enough money to fulfil the planned programs.

Many schools are really well-furnished with modern equipment, but there are not enough teachers. Some experimental schools have been established for the purpose of testing new programs.

RESEARCH

Research falls mainly under the control of the Yugoslav Institute for Physical Fitness at Belgrade. The University of Belgrade is building its school of Physical Education on the same site as the institute. The area is constructed so that it can be used as a national leadership camp, a coaches' school, a training ground for athletic groups, a research institute, or a community or school recreation centre.

These sites offer a wide variety of facilities, including:

-- a large administration building containing offices of national personnel and facilities for research in sports medicine and physical education.

-- four housing units, each holding 20 occupants.

-- a building housing a 25-metre pool, a room for Olympic gymnastics, a weight training room and a basketball court.

-- a handball area. (Handball is one of the leading European sports and is unlike the handball played on this continent. It is the most popular sport in Yugoslav schools.)

-- outdoor basketball area.

-- tennis courts.

-- a marathon and cross-country track.

-- a well-maintained track area with six lanes and facilities for shot put, steeple chase, broad and high jumps and hop, step and jump.

-- a sloping experimental track. (Experiments on this track have shown runners lengthen stride and run faster on this type of track.)

-- an area for hammer, discus and javelin throwing.

-- a table tennis area.

Sports Medicine

This is also a division of the Institute and is devoted chiefly to the testing of top athletes. The athletes are given an extensive series of tests, and their progress is charted over the period of a year. Thus, each individual provides an extensive case study. Here are some examples of the tests and measures taken:

-- anthropometric measures.

-- general health examination.

-- heart X-rays.

-- electrocardiogram measures.

-- the Litvinov test (a test of general fitness developed in the U.S.S.R.).

-- general and specific fitness tests.

The athlete is given steady state tests on the bicycle ergometer and extensive studies made of his changing performance, including gas analyses. Specific tests were designed for each sport. For example, the rowing test might be rowing 34 strokes a minute for five minutes, resting three minutes, and rowing five minutes, repeated several times. Changes in heart recovery would be noted; the athlete is expected to show improvement over the course of the training period.

Physical Education

Films are made of each athlete in action in his event, and these are graphed and studied from the bio-mechanical viewpoint.

Laboratory analyses are made in such fields as acceleration of running, vertical jump height, measurement of force (by a brush recorder and strain gauge system), and strength and muscular endurance tests.

TEACHER TRAINING

School of Physical Education at University of Belgrade

This school is generally considered to be the best of Yugoslavia's three schools of physical education. The schools offer two degrees: one, a degree for elementary school teaching, is obtained after a two-year course; the other is for secondary school and requires four years of study.

At Belgrade, Physical Education is one of 25 faculties. The physical education staff boasts 45 members, including 26 professors and lecturers, nine assistant professors and five associate professors. Only one doctorate has been granted in 65 years.

The curriculum is similar to that in comparative courses in Canadian universities. Skiing is included, with two weeks of skiing in the mountains offered three times in the school year. Also included are three weeks of camping and three weeks of walking, with one night spent sleeping in the snow. Students must climb 2,000 metres high and walk 200 kilometres as part of the course.

When the authors visited in 1963, existing facilities were poor, but new and modern facilities were under construction. There was a good deal of heavy gymnastic equipment, as well as swimming and basketball areas.

Research equipment was limited, but plans called for extensive expansion in the new buildings. All research done here will be in conjunction with the Fitness Institute.

GENERAL RECOMMENDATIONS

These features of Yugoslav physical education and recreation programs might be applicable in Canada:

-- a national training centre for recreation leaders and coaches.

-- a national centre for the coordination of physical education.

-- a centre for the training of athletes and a sports medicine group to test these athletes. (This centre could be combined with the two already mentioned.)

-- an awards system for school children, aimed at motivating them towards increased fitness and athletic skills.

-- a similar awards system for adults.

-- coordination of the activities of national athletic and recreational groups.

-- national paid secretaries for each major sport.

-- coaches at a national level in the main sport.

-- training camps for representative teams.

-- experimentation with all-purpose and all-weather playing fields.

2. UNION OF SOVIET SOCIALIST REPUBLICS

GENERAL BACKGROUND

Although the U.S.S.R. is the largest country in the world, the major part of the land area is sparsely populated, with half of its 220,000,000 inhabitants living in about six percent of its territory. Despite its great size, the climate of the U.S.S.R. is surprisingly uniform. For the greater part of the year, the polar continental air mass extends over the whole country, bringing clear, dry days with low temperatures and some light snowfall.

The U.S.S.R. has moved from the illiteracy of Czarist Russia to the position of a country boasting one of the world's most advanced educational systems. In 1897 it was estimated that over three-quarters of the people could neither read nor write; by 1926, four years after the formal organization of the U.S.S.R., the illiteracy rate had been cut to under a half; by 1939 it was down to 18.8 percent; now, illiteracy is virtually unknown in Russia.

Since its inception the Soviet government has established several hundred thousand primary schools (four to seven years) and secondary schools (ten years). Twenty-two new universities, many secondary technical schools, and numerous other institutions of higher education have been established, including about 400 teachers' colleges.

The content of all education in the Soviet Union is permeated by the ideology and directed by the needs of the Communist party.

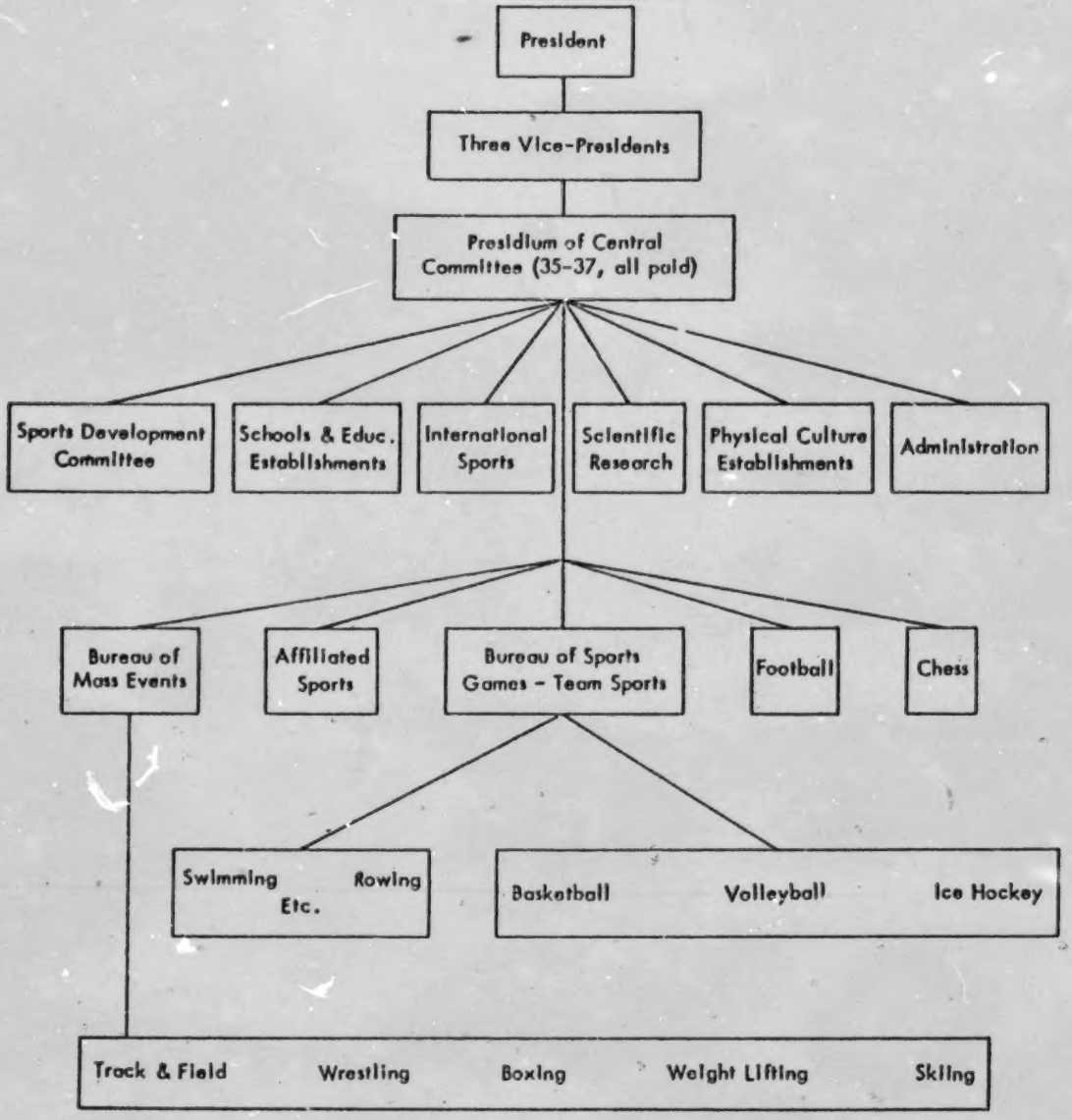
ORGANIZATION OF SPORTS

All sport in the U.S.S.R. comes under the jurisdiction of the Union of Sports Societies and Organizations (U.S.S.O). It was previously known as the All-Union Committee of Physical Culture and Sport.

As can be seen in the chart on page 9, the overall committee consists of a president, three vice-presidents and the presidium of the central committee. This latter committee consists of 35 to 37 paid members and settles all questions related to sport in the country.

This organizational plan is followed by each republic as well as by each district. Most people in the U.S.S.R. are involved in some kind of sport, and thus there is concentration on each of the three levels. Much of the success of the sports programs is attributed to the fact that there is such a broad base of mass participation.

OVERALL ORGANIZATION OF SPORTS IN U.S.S.R. - CENTRAL PRESIDIUM



1. Schools

School children are required to take up to two hours per week of physical education in the elementary school. Physical education is compulsory from the first to the eleventh grade.

There is a required program for all schools, which changes for each grade. Here is the main program:

1st and 2nd grade - The emphasis is on gymnastics and games; rhythms are included, but as additional lessons.

3rd and 4th grade - Elementary track and field skills are taught, as well as skiing and basketball.

5th grade - Gymnastics, skiing, basketball and other games are stressed. Skis are supplied to schools, with the emphasis on cross country skiing.

8th grade - Basketball is completed by this level. European handball or volleyball is played. European handball is becoming increasingly popular. It is considered useful because the skills are not difficult to master and it can be played by either sex.

2. Out-of-School Sports

Children's sports clubs are concerned with out-of-school sports. The club is headed by a special committee made up from the children themselves, guided by a physical education teacher. The clubs are usually for specialized sports, such as gymnastics or track and field.

The sports clubs meet two or three time a week, generally after school. This can be done in the U.S.S.R. because the school districts are small and most children live within five minutes of the school. Such clubs are considered a big part of Soviet educational life, as they help to provide opportunities for all levels of ability.

In addition to the regular physical education, when children are tired or restless they may be given three to five minutes of exercise, perhaps every hour. This practice is encouraged.

The school year consists of four quarters. Competitions are continued during the holidays. The principal of a school cancels classes on six days each year, called "Health days". The children may go to the country or the river and play games.

All children have medical examinations, after which they are divided into three groups: children who can have any exercises and unlimited participation; a restricted group, who have to attend all lessons but are under observation; and a group with deficiencies, who are allowed only one hour a week of specialized activity under guidance.

The aim of each group is to improve. There is a physician at each school, whose job is to examine the entire school population. Each school, on the average, has about three teachers of physical education.

In the U.S.S.R., sports competition is considered to be the best way of improving health and well-being. These are the various forms of competition:

1. Intra-class competition.

2. Inter-class competitions, from which the best go into the school competitions.

3. District competitions, in which the all-school teams participate. There may be as many as 20 schools in the district.

4. City championships, for the best three school teams and selected boys from all districts.

5. Union championships, for those who have excelled at other levels.

There are usually 14 sports for competition in school, and the children are divided into four age groups: (1) 11-12, (2) 13-14, (3) 15-16, (4) 17-18. The fourteen sports are: basketball, volleyball, water polo, cycling, gymnastics, track and field, swimming, diving, table tennis, lawn tennis, soccer, shooting, canoeing and chess. Handball (European variety) has been added to the list recently. This is played indoors or outdoors on a rectangular area with small goals comparable to soccer goals. The ball, thrown from player to player, is slightly smaller than a volleyball. If an individual is exceptional, he may compete one grade higher. The Research Institute studies what children should be doing at various grades and ages. For example, at ages 13 and 14 the 400 metres is acceptable, but the 800 or discus is not allowed.

High school results are excellent. For example, in 1963 the winning high jump was seven feet and the broad jump 23 feet.

Children who are exceptionally capable and who are not satisfied by the amount of sport in the schools may attend children's sports schools. Here, the children are coached in the particular event they desire. There are more than 2,000 such sport schools, attended by more than 600,000 boys.

Most children go to 'pioneer camps' during their vacation. These have some similarity to the Boy Scout movement. There is a coach in physical education at the camps, and each camp has soccer, basketball, and other sports. There are also pioneer camps in the towns and adjacent to the factories.

There are special classifications worked out for fitness, in the form of fitness tests. These have certain stages. The first stage is not difficult, and there are some seven events to stimulate interest. In addition, there are graded tests in the major sports. The Master of Sport is the highest such classification. Here, for example, seven feet is the standard to be reached in the high jump. About 65 to 70 percent attain the first level, though the aim is for 90 percent in a few more years.

The activities badge presented as each stage is mastered is considered a stimulus to further effort.

There are gymnasia in each school now, but not pools. The children are taken in buses for swimming. The standard-size gymnasia are 12 to 44, 13 to 26, and 12 to 24 meters.

The three most popular sports in schools are (1) track and field, (2) skiing, (3) volleyball, though soccer is the game most favoured by children outside classes.

FACILITIES

Central Lenin Stadium

This complex, completed in 1956, was built mainly by volunteer labour, with a total of more than a million volunteers working free of charge. The principal part of this complex is the main stadium, seating 105,000 people. There are three levels around the stadium, including a restaurant, a hotel-like residence for athletes, rooms for various sports, and research and sports medicine facilities. The playing field in the stadium has a grass area in the centre with a track on the outside. Soccer and track and field are the dominating sports played here. This stadium has been the scene of the U.S.A.-U.S.S.R. track meet.

Near the main stadium is a smaller stadium with a seating capacity of 20,000. This stadium is used for tennis (very popular in Russia), volleyball, basketball and handball.

There is a third stadium in the complex, housing a 50-metre pool and a diving pool of international standards for the use of superior athletes. This stadium boasts underwater viewing, angled starting blocks, finish judging stands as in track and field, and a turn practice pool. There is underwater access to the pool from the dressing room, for winter use. Seating capacity is 15,000. A fourth stadium houses an ice surface and seating for 10,000.

The complex also has outdoor basketball courts on a board base, along with outdoor volleyball courts and practice playing fields. Overlooking the complex is a ski jump which is adaptable for use winter or summer.

This development provides Moscow with sufficient facilities to play host to the Olympics.

Kirov Park

Kirov Park near Leningrad is chiefly a large recreation area intended for the use of the general public. There is a stadium, swimming, boating and picnic areas and an amusement park, as well as facilities for basketball, volleyball and local games.

The authors were particularly impressed by the number of boat sheds along the river bank and the number of people (a few hundred boys and girls) training for competitive rowing. Single and double sculls, as well as eights, were seen along the river in great numbers.

The park is also used for training of cross-country skiers in the summer. Very small wheels are attached to 1/3-length skis to make them usable in the summer.

Kirov Stadium, with its seating capacity of 100,000, is used mainly for soccer and track and field.

RESEARCH AND TEACHER TRAINING

Moscow Institute for Physical Education

Work at the Institute is concentrated in two main areas, pedagogy and research. There are around 3,000 students, one-third of whom are women. The general courses are four years in length on a background of 11 years elementary and secondary school. About a thousand students live on the campus.

The institute has three research departments: psychology, physiology and sports medicine. There are 12 general chairs: foreign languages, chemistry, history, and so on. Each chair selects a few of the best students for graduate work. At the time of the authors' visit, there were about 70 postgraduates.

Moscow Institute was created in December of 1920 when Lenin signed the agreement for its construction. The original site was an estate formerly belonging to a wealthy family. The main building was added in 1934. In all, there are almost 300 professors and 150 other faculty working at the institute. In 1963, the teacher-pupil ratio was about four or five students to each professor.

Here is a sample four-year timetable:

General

1st Year	2nd Year
Anatomy	Foreign Languages (4 yrs.)
Chemistry	Physiology
Psychology	History of Physical Education (P.E.)
Pedagogy	Theory of P.E.
History	Massage
Foreign Language	Sports Games
Sports Games	Gymnastics
Track and Field	Swimming
Gymnastics	Track and Field
Cinematography	Skiing
Sports Constructions -Building Facilities	Political Economy
Skiing	
Swimming	
Speed Skating	

3rd Year	4th Year
Philosophy	Medical Treatment
Theory of P.E.	Philosophy
Hygiene	Organization
Psychology of Sports	Administration
Physiology of Exercise	Foreign Language
Foreign Languages	

Options

Aesthetics
Music
Rhythmics
Foreign Languages
Chess

The teacher training in the institute is channelled into sports and pedagogy. Students separate for specialization, with the sports students specializing from the beginning of their course.

The Institute provides extensive sports facilities, including:

-- an indoor track and field gymnasium. (A metal screen is provided for throwing the javelin and discus. The gymnasium also offers a 35-metre cinder track, a broad jump and weight training area.)

-- outdoor basketball courts, football field and track area.

-- an outdoor gymnastics area. (Parallel bars, horizontal bars and sand tumbling areas were placed in a natural setting.)

-- enclosed cages for the discus, javelin and shot put, 20 cages in all.

-- tennis and backboard areas.

The outside facilities were built mainly by students at the Institute as part of a specific course. This course is aimed at giving the student training in this type of construction, training that might be useful later in his own community. About 30 outdoor sculptures glorifying the human body are distributed around the Institute.

Research is conducted in the pedagogical division of the Institute, as well as in the scientific division. When the authors visited, there were two electro-encephalographs (15 and 8 channels), two Swedish-designed bicycle ergometers with attached closed-circuit apparatus, and more electromyographic equipment.

Physiology is taken by all second-year students. In addition, physiology of exercise is studied, with the students doing subjective experiments. Graduate work may be done in sports physiology, and a doctorate can be obtained in Sports Physiology or Pedagogy.

Besides the Moscow Institute, there are scientific institutes of physical culture and sports at Leningrad and Georgia. Moscow's is the senior institute and it unites the scientific research of the three, as well as directing research in other pedagogical institutes.

Research here is channelled into several divisions:

-- physical education of children up to 18 years old, of young adults, and of middle-aged and elderly people.

-- sports medicine.

-- physiology.

-- physical education in industry and agriculture.

(This consists mainly of studies of rest intervals and work periods, and what exercise might be most useful to each particular industry).

-- social problems or physical education from a sociological viewpoint (for example, how sports may help to make the "good man").

-- psychology.

-- biomechanics.

In 1963 there were 32 postgraduates studying scientific research at the Institute. Some research workers take pure research lines, but most research is connected with practical physical education. About 100 workers are involved in research outside the Institute, but are under its direction. These individuals must write a work and defend their thesis. Most institute workers have Candidates of Science and Doctor of Science degrees, similar to North America's M.Sc. and Ph.D. It is an unusual accomplishment for a person to get his doctorate in science before he is 40 years of age.

The "Litvinov test" for physical fitness was developed at the institute. This test, first published at the Twelfth Congress of Sports Medicine, consists of 20 deep knee bends at a specified rate (with the aid of a metronome), followed by five minutes of rest, then 15 seconds running on the spot at maximum speed, five minutes rest, and three minutes running at a speed of 180 steps a minute. The test is based on changes in the subject's pulse rate.

Leningrad Institute of Physical Culture

This is similar to the Moscow Institute, but on a smaller scale and with more emphasis on pedagogy. There are eight doctors of Science on the staff as well as around 90 Candidates of Sciences and many Honored Masters of Sports. There are about 200 to 250 day students in each year, but the evening and correspondence students can bring the total number working through this Institute to as many as 2,500.

Leningrad Institute has a winter camp with a hostel-like building as its centre. Each student spends two months a year there during the four years of study. The camp is largely for hockey, skiing and skating, but theoretical subjects are also taught.

Facilities at the Institute are similar to those at Moscow. Two notable additions are a professional library and a skiing museum.

RESEARCH

Physiology

In the field of kinesiology, there is a laboratory for the study of movement, including an electroencephalograph (five channels) and an electromyograph (eight channels). Contact sports are studied, as are rowing and bicycling.

Another study is the telemetering of heart rate to determine the amount of work done by the heart in various sports. Further study is being conducted into general physiological changes of athletes.

Psychology of Sports

The main subjects studied in this division are general psychology and personality psychology. The general aim of these studies is to obtain an idea of the psychological activity during sports events. Experimentation takes place during sports training.

Methods of observation by sportsmen are being considered in depth. Exactness of observation is being compared with mental accounts of sports. There has also been considerable research into emotions of sportmen's reactions under controlled conditions.

Other Research

A feature of research in Russia is the amount done on performance and reactions of athletes. Field laboratories are generally close to athletic facilities, with the most outstanding example being the laboratories at Central Lenin Stadium.

The laboratory for superior athletes at this stadium usually has a staff of five. Its facilities include a Swedish bicycle ergometer, with gas analysis, and a biomechanical area for anthropometric, strength and semi-circular canal tests. The lab also has equipment for ballistocardiogram work as well as a 16-channel electromyograph.

The stadium has rooms for virtually every kind of medical test: X-ray, electrocardiogram, electromyography, electroencephalography, all types of therapeutic devices. There are areas for dental care, massage, blood analysis and various others. In 1963, the staff totalled around 50 doctors, nurses and technicians. The general area provided is called a polyclinic.

GENERAL RECOMMENDATIONS

-- an overall plan for sport and research, both on a national and on a provincial level.

-- the introduction of European handball to Canadian schools.

-- encouragement of provincial and national competition for school children.

-- creation of children's sports schools.

-- a national fitness test, for adults and children.

-- graded tests in the major sports.

-- centralized national facilities to be used for national and international competition as well as for the training of teams, special clinics, short courses, and so on.

-- more extensive research, in areas including the psychology of sport.

-- development of winter facilities in conjunction with schools of physical education.

-- development of outdoor gymnastic areas.

-- provision of summer cross-country skiing equipment.

-- greater liaison with other countries and better dispersal of information from these other countries to Canadian coaches and research workers.

3. SWEDEN

GENERAL BACKGROUND

Almost two-thirds of Sweden's 174,000 square miles is covered by lakes and forests. Close to 55 per cent is classified as forest land, while its 96,000 lakes place it second only to Finland among European countries in this respect.

A warm Gulf stream running along the Norwegian coast favourably affects Sweden's climate. February is the coldest month with a mean temperature just below 32°F. The average annual rainfall is 20 inches.

The majority of Sweden's eight million people live in the souther portion of the country. Roughly half the population is urban; Stockholm, the largest city, has about 800,000 residents. More than 99 per cent of the people belong to the Established Church of Sweden (the Lutheran Church).

This constitutional monarchy is considered one of the most successful welfare states and boasts a very high standard of living. About 10 per cent of the national income is used for welfare and social security, covering such items as child allowances, free school books and equipment, free school lunches and rent rebates to large families. Much of the cost of medical care and sickness and accident insurance is met by the state.

An interesting aspect of Sweden's educational system is the existence of about 100 "folk high schools". These schools have an enrolment of about 12,000 pupils and operate as boarding schools. Their aim is to awaken interest in social and cultural questions among people who are not able to enter ordinary high schools. However, these schools do provide certificates for entrance into higher educational institutions.

There are five universities in the country and a number of professional colleges which offer subjects not dealt with in the universities, such as physical education.

PRINCIPLES OF PHYSICAL EDUCATION IN SWEDEN

(This abstract is from an article by Dr. Paul Hogberg, principal of the Royal Central Gymnastic Institute)

When Swedes are to explain about physical education in their schools, they often go back to P.H. Ling and his theories. Most of these are still very much in evidence. That physical exercises should be based on the needs and functions of the human body, that they should contribute to a balanced overall development - these are assumptions and aims which still decide which

form our physical education is to take. Nobody would today contradict Ling when he stresses the importance of exercises being gradually intensified and carefully chosen, nor would anyone deny their character-building value. His demand that every movement and exercise should follow a set pattern is however no longer considered to be relevant, partly due to the fact that children's exercise programmes nowadays often take a form of free play and athletics.

Thus, though many of Ling's principles are still applied, the difference between physical education today and fifty years ago, is very great indeed. This can probably be explained by the changing ideas of education, by its new purposes and methods. The progress made within those branches of science which form the basis of physical education, that is above all physiology, anatomy, psychology, and pedagogics, has also strongly contributed to the rapid development. Already in this context, I should like to bring it out clearly that physical education in Sweden, and I think I might safely say in the whole of Scandinavia, is founded on physiological and functional anatomy to a larger extent than what is the case on the Continent where it often seems to have been motivated by philosophic concepts. This attitude can also be assigned to P.H. Ling, but his ideas have been further developed by several Scandinavian theorists, the most outstanding of whom is Professor Lindhard from Denmark.

What methods are then applied in Swedish schools? Well, if by methods one means the dogmatic way of thinking which characterized for instance, the beginning of the twentieth century, then we have no longer any specific methods and principles. There is no longer anything that is obligatory, and nothing that is vetoed. However, a Swedish physical education teacher must be prepared for his methods to be criticized by the professional physiologist, as well as by specialists on anatomy, psychology, and pedagogics. The scope of the subject has also been assessed by people representing these branches of science before any school syllabus has been drawn up. This also means that there must exist certain scientific departments at the training colleges specializing in physical education. At G.C.I. we have thus the Research Department of Physiology and Functional Anatomy, but so far we have only a single teacher in Psychology and Pedagogics. In order to show what this means in practice, I might mention that when the curriculum for the reorganized sixth form was to be drawn up, the Ministry of Education asked our scientific departments for a collocation of material from the scientific experiments which might help to decide what proportion of lessons should be devoted to physical exercises in the sixth form and also help to give a general idea what form these exercises ought to take. To ensure that this system will be efficient, it is essential that no gulf should exist between theory and practice in the training of teachers. At G.C.I., we have tried to solve this problem ...

The theoretical basis of our teaching is physiology, functional anatomy, psychology, and pedagogics, all in conjunction with research in the various fields. In one subject called the General Theory of Physical Exercises is taught the application of the above-mentioned sciences to physical education. One of the lecturers in the Department of Physiology teaches the Theory of Physical Training; another lecturer in the Department of Functional Anatomy teaches the Theory of Movement. The teacher of Educational Psychology lectures on, for instance, psychological and educational backgrounds to the methodic planning of various exercises. He also analyzes the systematic teaching in conjunction with what he has earlier demonstrated as regards the process of learning. Then the lecturers in teaching method and planning will teach their subject after the general principles the theorists have outlined.

Due to the fact that our subject has been given such a strong physiological basis, it has gained a unique position in school. The purpose of education is to fit the individual for living, in the widest possible sense. The principal condition in order to attain this is that his physical health and capacity correspond to the demands society make. Maintaining the health and capacity of the pupils must thus be something primary, whatever the system and level of education. In our country, as in other culturally progressive countries, it has been considered a matter of course that the individual's biological need for physical activity should be met at school. A deficiency in the teaching of theoretical subjects may be repaired later, but deficiencies in physical development during the important stage when the human body is growing are not so easily repaired. In this respect, doctors give much stronger support than used to be the case. They view with favour, a physical activity which will generate the extra strength needed as a margin between one's actual physical capacity and the demands made by one's work.

Though we stress so strongly that our physical education should have a physiological basis, we do think that our subject is above all important from an educational angle. In this respect, it is no different from other school subjects but is just one way of forming balanced people and good citizens. It might be pointed out that, in Swedish Schools, it has long been considered to be the physical education teacher's task to teach the pupils good manners and behaviour.

When we decide on exercises and methods, educational views should thus be foremost in our minds. This means that exercises which are worthwhile from a physiological point of view will still not be considered acceptable if they do not suit the children's physical and mental age in other respects. The following example will show this: formerly corrective exercises without apparatus were thought to be justified by their physiological and orthopaedic value. The latter was then regarded as so great, that one paid no attention to the fact that the children thought the exercises were boring. It even went as far as being evident from the view expressed many years ago by an old physical

education teacher when supervising G.C.I. students. One trainee had been giving a very good lesson, in the course of which the pupils had really enjoyed themselves. When the old ex-officer was to pronounce judgment on the lesson, he said, "It was a good lesson but there was one flaw - the children enjoyed too much. Life is hard and dull, and children should get used to that fact already at school."

Nowadays, we do not get much support from orthopaedic experts as regards to the supposed corrective effect of exercises without apparatus, but we think they constitute an excellent form of practice which may prove satisfactory in a way other than a strictly corrective one, that is, if the exercises are presented in a form which will appeal to and give relaxation to the pupils. That this is possible, has been proven in Sweden, for instance, by Maja Carlqvist. Eurhythmics, which have here received a very strong impetus from Ernst Idla, are very popular in Sweden with older girls. The aesthetic aspect then comes into the picture. Creating a beautiful carriage is always desirable from an aesthetic point of view even if it should not be advantageous from a physiological one. The aesthetic argument is acceptable, provided the teacher can "sell" what he presents the pupils with, that is that he can make the children like it. As has already been pointed out, eurhythmics are very popular with the older girls. These movements are characterized by their dynamic rhythm where the intensification partly lies in the perfection of the exercises. Moving in the time to music is a most worthwhile experience which may be deeply absorbing and act as a stimulus aesthetically as well as emotionally.

As regards the educational side of gymnastics, we have gone from the typically Swedish "military" type with a large number of pupils to a kind of exercise with a fewer number of pupils which favours independent activity. In this respect, great progress has been made, but a lot still remains to be done before we have perfected the pedagogic methods which give ample scope for the imagination and initiative of the pupils themselves.

In the course of the last thirty years play, ball games, and other sports activities have been given more room in the school curriculum. Quite early it was established that their physiological value is at least as great as that of gymnastics, and that, from a general educational point of view, they can offer something which gymnastics cannot. In Swedish schools there is one outdoor season lasting one or two months in autumn, and in spring another one of about one month. In winter a number of lessons are devoted to ice hockey, bandy, and skiing, as well as indoor swimming and ball games. The proportion of lessons given to gymnastics on the one hand and games and athletics on the other depends very much on climatic conditions and facilities as regards to accommodation available. One thing is, however, self-evident: in our country and in our climate it is not possible to carry out efficient

physical education without access to a gymnasium. Apart from the above-mentioned seasons during which lessons are devoted to games and athletics, six to twelve whole days of the academic year are set apart for athletics and outdoor life.

We shall now see how the Swedish modern system of physical education works in practice. We have here in Sweden a welfare state. Some of the principles behind this type of society are: that we should be fully employed and that the state should take on a certain responsibility for the social welfare of its citizens. At the present time, this means that most people are assured of a standard of living. Education plays a very important part in the new society that is taking shape. An extensive reform of our system or compulsory education has recently been carried out after ten years of experimentation.

After the children start doing a full day at school, they will have three hours' physical education a week except in their ninth year at school when they will have two lessons a week. In technical and commercial schools and schools of a similar type they are to have two, and in the sixth form three, lessons a week. On top of that they will get six to twelve whole days a year of games and athletics. The number of lessons a week means a decrease in comparison with what we used to have. This is due to the fact that the curriculum in general, has been cut so that other school subjects as well have been affected, but there is no doubt about it that physical education is the subject that has been most severely affected.

In this way, our situation has become such that we are forced to rationalize our teaching. At the same time the structure of our society has changed so rapidly that the need for physical exercise has grown. From our own experiences as well as from those of other countries we have learned that with the increase of automation and the improvement of our means of communication, with the introduction of radio and T.V., the functional capacity of our system of circulation and respiration and also our muscular capacity are bound to deteriorate. This, in turn, will result in certain physical and mental weaknesses. This has caused us to try to find new paths for our teaching. The tasks we now consider the most important are the following:

1. The training of our organs of circulation and respiration or the building up of what we call physical fitness;

2. the building up of the strength of above all the muscles of the abdomen and of the lumbar region;

3. to teach our pupils how they ought to stand, sit, lie, lift, and carry;

4. to give the pupils a chance of improving their technical efficiency and co-ordination;

5. to make the exercises seem purposeful and attractive to the pupils, and giving them ample scope for the imagination and initiative of pupils themselves;

6. to choose exercises which can be carried on by the pupils even after they have left school.

Many of the essential requirements for fitness and endurance training exist in Sweden; moreover, I think Swedes are attracted by exercises which demand a certain perseverance. Among the latter, we include ball games like football, handball, basketball, ice hockey and bandy. Bat and ball games as, for instance, rounders are less demanding physically but might be included here. Incidentally, it is striking how few bat and ball games we have - adults in Sweden simply do not play any ball games in which wooden bats are used.

The most typical exercises for fitness and endurance training are, however, cross country running, orienteering (cross country running by map and compass), and skiing. At Swedish schools there is often nowadays laid out a course around the school or in the forest near it. The pupils are to do a certain number of circuits of interval training during about twenty minutes once a week. They can use the rest of the lesson, that is, 20 to 25 minutes, to have a shower and to rest before the next lesson. A similar type of ski training is possible in certain parts of the country. In winter such intense training of relatively short duration might very well take place in a gymnasium, for instance in the form of circuit training. In many schools the teacher uses a test on a cycle-ergometer as an added stimulus in fitness and endurance training. The schools have their own cycle-ergometers, and the teachers are trained to make tests after Professor Åstrands's method. As the pupils see how they improve thanks to the training, they start taking a great interest. Often those who have not any great ability for physical activities are very much attracted by this particular type of training, which with all simplicity can be easily adjusted to the individual needs of the pupils. We are fully aware that fitness and endurance training to many seems just as dull and boring as the type of exercises without apparatus. That is also why we use this type of test as a stimulating element, and also why we often make this sort of training optional. I might mention in this context that the combination of fitness and endurance training and ergometer tests has caused adults in Sweden to take an increased interest in physical activities.

The training of muscular strength is combined with indoor gymnastics. We still think that some of the old Swedish apparatus is the most efficient when we want to occupy a whole group of pupils, but in most Swedish gymnasia we nowadays also find weight lifting apparatus, horizontal and parallel bars, and rings. Our muscular training aims at creating a girdle of muscles which will help the individual to sustain more easily the normal strain he will be subjected to whether he is engaged in physical labour or not.

The teaching of correct posture and deportment, for instance how to lift and carry, also takes place in the gymnasium. This aspect of the subject is fairly new, and the training courses we have started at G.C.I. for teachers have attracted great attention and many have taken part in the courses. The exercises aim at teaching the pupils how to sit and stand and also at teaching them a correct technique of lifting and carrying. Through this type of teaching we want to prevent lumbar ailments and injuries. It is proposed that physical education teachers might also act as instructors in industry when needed.

As I have also mentioned the purpose of these new types of exercises, is not to cut out those exercises which make the pupils experience the satisfaction of having acquired some technical skill. This requirement is largely filled by means of ball games and technical exercises in athletics and gymnastics. Athletics are still very popular and are pursued in all Swedish schools during the autumn and spring seasons. But it has been established that the type of youth who wants to experience something more exciting is attracted by ball games, summer as well as winter. Moreover, it is beyond doubt that ball games in our country are the most popular forms of physical education. Unfortunately we tend to forget that character-forming purpose so typical of for instance, English schools. The attitude far too often met with is that one must win "at any cost". In this respect, there is a noticeable influence from the spirit predominant in, for example, international football, which in Sweden as well as in other countries has developed in this way.

Many forms of physical activity which appeal to school children are not suitable for adults. Therefore, we find it important that some of the many exercises which are practised at school should be such as to be suitable to be performed by people of all ages. Our sports days are useful in this respect. In the top forms of our modern and secondary schools as well as in the sixth forms the pupils themselves may choose between a number of given games and sports, but they may also make their own suggestions as to how they would like to occupy themselves during a sports day. Apart from more common ball games and athletics the pupils may then take part in swimming, rowing, shooting, skiing, more exclusive ball games, for instance tennis and golf, and above all, perhaps cross country running by map and compass (orienteering).

We hope that by letting the pupils try so many different types of activities and by sometimes giving them the chance of choosing themselves they will find some form they would like to pursue later in life. Unfortunately our sports days have not turned out quite as they might have done, partly because the planning of them has become so difficult in the larger towns, partly because the authorities have decided that that things like road safety instruction, fire drill, first aid, and child care are to be practised on sports days.

Something that is probably typical of physical education in our schools is that the relationship with the big voluntary sports organizations is so good. The National Association for Athletics and Sports has 40 special branches, such as the Swedish Football Association, the Swedish Skiing Association, etc. The Swedish Association for Athletics and Sports in Schools is also joined to the bigger national association though, in actual fact, it is in itself a national association in miniature, enveloping 2000 clubs. The leaders of the latter - of which practically all schools in Sweden are members - are solely teachers and pupils of the schools. The Association for Athletics and Sports in Schools is an organization for the voluntary pursuit of sports and athletics, but often the activities are fused so that it is difficult to tell where the obligatory sports activities finish and the voluntary ones begin. Through the Swedish Association for Athletics and Sports in Schools and the clubs belonging to it, there are arranged School Contests, District Competitions, and National Championships. Every year on the last Sunday in September the National School Championships take place in Stockholm's Olympic Stadium and elsewhere. Apart from athletics there are contests in swimming, sailing, marksmanship, and orienteering. In winter, there are similar contests in skiing. Ball game contests which stretch over a much longer time and take place in many parts of Sweden are arranged by the various specialized organizations in co-operation with the Association for Athletics and Sports in Schools. School sports and athletics are thus linked with Swedish sports and athletics as a whole, and the big organizations also feel some responsibility for physical education in schools. This means that a teacher will find it easy to get assistance should he need such.

Another phenomenon which also shows how the physical education of young people has come to concern the whole of our society is the trips to the mountains in the north organized for pupils at the end of February. More than 10,000 school children travel from all parts of the country by rail or coach to the mountains. The organizing of this enormous invasion of our mountains is done by the Swedish Tourist Board and the Ski Promotion Association in conjunction with the Swedish Railways. Often the local authorities contribute money so that the children may have a very cheap holiday in the mountains.

I have time and again stressed the important part which physical education plays in character forming at school. This is even more important as it also concerns young people who have left school. Sports, gymnastics, and outdoor activities play a major part in their leisure hours. In itself this is desirable, partly because of the educational element which makes the participant feel respect for set rules, gives him a feeling for fair play, and trains his will, partly because physical exercises develop the body and offer a desirable outlet for energy - energy that might otherwise have been let out in a less acceptable way. However, if young people take an interest in sports and nothing else, this may inhibit their cultural development. We therefore think it is the task

of the teacher and of the youth leader to achieve a reasonable balance so that sport activities do not prevent young people from developing other interests.

I have tried to give you a picture of the direction in which Swedish physical education is developing, after what principles we are working, and what this means in practice. We have no longer a dogmatic system stating clear-cut rules. Our methods of work are changing as the demands of society and people change and as scientific research advances. Our teachers are allowed plenty of freedom in their work, as working conditions vary so much in different parts of the country. Our system, if I may call it so, it is an experiment - an experiment which we are carrying out with our minds open to what we might learn from new experiences in various fields, in Sweden and elsewhere. While keeping our feet firmly on the ground and while examining critically what is being done in our own field, we are trying to adjust physical education to our society and to the needs of our citizens, but we are fully aware that our way of working may not be suitable in other countries with background, climate and needs totally different from ours.

RECREATION AREAS

1. Fiskatorpet

Fiskatorpet, meaning "fishing house", is a recreation area located on the site of a lodge once owned by the King of Sweden. The main lodge is run commercially and provides eating and sleeping facilities for skiers, as well as housing a weight-training area and a sauna room. Instructors are available through the winter for skiers. There are numerous tracks marked through the woods for skiing and running.

Near the lodge is a large shooting area, containing over 50 individual firing points. There are three such areas in Stockholm and around 270 in all of Sweden.

A membership fee is charged for full use of the facilities: two kronar a workout or 30 kronar for three months; to non-members, the charge is five kronar per test (a kronar is worth about 21 Canadian cents). One test, designed to measure physiological age, uses a bicycle ergometer and is known as the "steady state" test. It has captured the imagination of the Swedish people, many of whom will pay to take it. Under this test, the work load is constant and arranged so that the person will reach a steady state in five to six minutes. Pulse rate is taken and an estimate made from this of maximal oxygen intake from an Astrand nomogram.

Among the trees near the lodge are nine circuit-training stations, each one designed for a particular exercise. These stations provide areas for pull-ups, bench jumps, sit-ups with straight legs, push-ups and so on - all aimed

at increasing fitness. The area is under lights for night use as well. Once the individual's fitness is estimated, a workout to increase that fitness is suggested.

2. Lida

The Lida, south of Stockholm, is literally "place for outdoor living". It is much larger than Fiskatorpet. The most popular sport here is orienteering, involving finding a particular place by compass, either on foot or skis, often with whole families taking part. Orienteering is considered by many to be the national sport of Sweden with roughly 32,000 people belonging to clubs such as Lida.

Authorities are hard at work trying to increase people's desire for fitness and to be in the outdoors. Here at the Lida there are rides for children, a church with services conducted near the main lodge, exhibitions of dancing and gymnastics and numerous other features.

3. National Leadership Area

This leadership training area is set in the hills near Boson, Lidingo. Coaches and leaders are given seven months' courses here, although there are some short courses and the area is used occasionally by athletes and athletic teams.

This camp has an outdoor soccer field, track and field area, an indoor swimming pool and two small gymnasia. Recent additions are tennis courts and bastu or sauna equipment. The staff is constantly experimenting with various kinds of all-weather tracks.

Financial backing for this project comes mainly from the government, with some support from sports organizations.

SPORTS ORGANIZATIONS

1. The Swedish School Sports Association

This Association, founded in 1916, consists of 1,850 separate clubs and almost half a million members. There are 15 members on the Board of the Association; ten are elected at the annual meeting, one is a physician, two come from the board of education and two from the board of the Sports Federation.

The Association lists its main task as trying to engage as many pupils as possible in sport. It offers a "Youth Badge" to encourage participation. More than 2,000,000 badges have been awarded since the program's institution in 1919. A student must pass tests in five major areas to obtain each badge or medal.

Every autumn, Stockholm is the site of a children's national competition, an annual event for over 50 years. The competition consists of orienteering, swimming and track and field. Annual national competitions are also arranged in winter sports, such as slalom, figure-skating, skiing, ski-jumping and speed skating. There are also big high school tournaments in soccer, table-tennis, handball and basketball, and country-wide competitions in tennis and fencing.

2. Swedish Sports Federation

About 9,000 clubs are linked to this Federation, encompassing about a million members. Around 200 representatives of the clubs constitute the Federation Assembly. The annual meeting of the Assembly elects an executive committee, which is supplemented by two government appointees. There are five important committees:

a) the Sports Grounds Committee, which gives free advice on the setting up of sports establishments, examines projects of societies or individuals, and makes financial recommendations to the government.

b) the Youth Committee and the Recreational Sports Committee, which support youth and recreation divisions in clubs, and plan and supervise courses.

c) the Co-operation Committee, which maintains contacts between the sports movement and other cultural movements for youth.

d) the Polyclinic Committee, which runs the Sports Polyclinic in Stockholm Stadium. (Any member of the Federation may have a health examination or be given advice on any particular sport at this polyclinic.)

The Federation is partially supported by the government. Since 1934 the government has set aside for sports about ten per cent of its revenue from a company which has the sole right to operate football pools. This money is used for setting up and improving sports establishments and for promoting athletics generally.

ORGANIZATION OF PHYSICAL EDUCATION IN STOCKHOLM'S SCHOOLS

(Taken from an article by Tora Amylong, and reproduced here with her permission)

The larger a town the more difficult it is to provide young people with a good physical education. It is even harder to get them to display a permanent interest in open air pastimes and physical activity so that such occupations

naturally become a part of the leisure activities of the adult - a part which he cannot do without. In a large town the young people are often forced into a mechanized environment which does not call for much in the way of physical ability. In addition, a large town has such a wealth of easily accessible distractions that the sort of recreation which contains a sporting element soon becomes pushed into the background. From being keen on sports as a young child, the young city dweller easily turns into a passive spectator.

It may seem that the problems ought not to be so great in a city such as Stockholm with only 807,000 inhabitants, but they are very marked and the City Council has therefore allocated certain funds for certain arrangements designed to strengthen physical education in the schools and in the active leisure occupations of young people and adults.

The Stockholm City Education Committee is the body responsible for the Compulsory Primary Schools and also the City and State Secondary Schools. The same educational regulations and teaching systems are in force here as in the general School systems throughout the country.

Stockholm has about 80,000 pupils in the Compulsory Nine-Year School, while there are about 34,000 in the City, State and privately-run Secondary Schools. Physical education is a compulsory subject in all these schools. There are about three lessons a week on the average and in addition, there are from eight to 12 open air days per year.

In the School Administration, the following individuals are responsible for the administrative and pedagogical direction of physical education.

In the School Administration

2 Inspectors of Physical Education.
2 Half-time Advisors for the Lower and Middle Levels (Grades 1 - 6).
1 Half-time Advisor for teaching in Special classes.
1 Half-time Advisor for Experimental work.
1 Full-time Advisor for Bio-technology (Ergometrics).
1 Paid Advisor for Road Safety Instruction.

Distributed among the teachers in the Compulsory Schools.

400 hours a week instruction to class teachers.
200 hours a week on direction of sport.
100 hours a week on direction of teams of Traffic Wardens at schools.

The Advisor in Bio-technology (Ergometrics) visit each 8th and 9th Grade Class during the lessons in practical vocational guidance. The pupils receive one theoretical and one practical lesson in work technique and industrial hygiene during each school year. Questions as to what the school can do to prevent the occurrence of nervous afflictions are a problem with which the Advisor in Bio-technology (Ergometrics) is in constant touch. Since her lessons take place in School Workshops, it is necessary for her to cooperate with the Vocational Education teacher to find a solution to these local problems. The Advisor is also engaged in advising the Purchasing Department of the School Administration regarding the buying of chairs and tables for the classrooms and special rooms.

The Advisor in Traffic Safety must act as the liaison officer between the Police Office for Instruction in Schools and the School Administration, as well as advice on the purchasing of educational material.

The pedagogical work of the Inspectors of Physical Education and the other Advisors is carried out mainly among the Class teachers who teach in Classes 1 to 6. Programmes covering both athletics and gymnastics are worked out for these teachers. The programmes are demonstrated with pupils for the teachers who are called in to regular demonstrations which are held centrally.

The Class teacher receives additional help when the School Physical Education teacher comes to the class every third week and goes through the demonstrated programme which is adapted to the standard of the class and the local conditions. Through this instruction, all the pupils in the Lower and Middle Levels receive relatively uniform teaching.

The pedagogical ability of the Class teacher combined with the specialized help he receives from the Physical Education teacher, is a good guarantee that the pupils will receive the instruction prescribed in the curriculum. This instruction is paid for entirely by the City Authorities and amounts to 400 hours a week in all. These hours are distributed over the schools according to the number of class teachers who teach in the subject. The help with instruction is of particular value to those elder teachers and those class teachers who do not have much aptitude for teaching gymnastics or sports.

From the 7th Class, or possibly earlier where the specially trained Physical Education teacher is responsible for all the teaching, this teacher, of course, is free to work out training programmes for his own classes according to the current curriculum. The Physical Education teacher has a good deal of freedom to allow his own interests to influence the instruction when the programmes are written in general terms.

In order to provide the physically less-endowed pupils with better physical education, each Compulsory School has special lessons in posture gymnastics, which vary between one and four hours a week per school. In the Secondary Schools the Government pays the teachers for the lessons in posture gymnastics. These schools are allowed one to two hours of posture training a week according to the number of pupils.

In the Compulsory School, the pupil receives posture gymnastics during school hours. He is allowed to leave the regular work in the classroom twice a week during a period of two months with a two month break between periods. The selection and supervision of pupils is carried out by two orthopaedic doctors. They visit each school twice a year and examine the pupils the School Doctor and the Physical Education teacher consider to be in need of orthopaedic examination. We consider that we achieve fairly good results, especially with the pupils who receive special foot gymnastics. Posture lessons involves these pupils in two extra hours of gymnastics a week and in addition, they are taught in small groups which provides the teacher with the opportunity of paying particular attention to the needs of each pupil.

According to the Senior School Doctor's report, 4,348 pupils in all were selected by the orthopaedic doctors for posture or foot gymnastics during the school year 1960-1961. This is no more than 5.4% of the total school population. This figure cannot be regarded as high, since most of the pupils - 2,062 - come under the heading of "flatfooted" and 434 under the heading of "slack posture".

In order to promote and support sports at schools, the City Authorities remunerate teachers who are interested in sport and who teach in the Compulsory Schools, providing they take on the job of directing sports at their own schools. The teachers in charge, are responsible for the schools' sporting associations and for registering and preparing the pupils for the District Schools Championships and for organizing and directing the schools' own competitions. In schools with between six and 20 classes, the teacher is remunerated for one extra hour a week. For every additional 20 class divisions, the fee is increased by another hour a week.

There is a Cooperation Council in Stockholm to coordinate the Sport Associations of the various schools and it receives grants from the City. Part of the money is spent to publish the magazine called "Idrottskamraten", which is distributed to every pupil who belongs to his school's Sport Association.

The open-air days are of great importance in physical education at school and in Stockholm there are between eight and 12 full days a year, or alternatively between 16 and 24 half days. On such days, the pupils spend the school day out in the forests or on the sport grounds. In classes 1 to 6 the Class teacher is responsible for the planning and direction of his class open air days. At the

Upper level and in the Secondary Schools where, for technical reasons connected with the timetable, all the classes must have common open air days and the School Physical Education teacher is responsible for planning and carrying through the open air days with the help of the other teachers who teach the classes concerned. These teachers are liable to take part in the work as directed by the School Headmaster. The Physical Education teacher is remunerated with one or two hours a week extra for dealing with the planning, according to the total number of hours a week he works with the classes involved.

To help both Class teachers and Physical Education teachers, Stockholm also has a special Instructors' group which is mainly used on open air days. This is available through another Department of the City Council, called the Board for Sport and Open Air Activities. A Class teacher who cannot ski or skate or who does not understand the technique of athletics can be assisted by an Instructor from the City. The latter accompanies the Class on its open air day and helps the teacher with instructions and so on. This is of particular value to the Class teacher who is approaching retirement age or who suffers from some illness which reduces his agility.

Certain other voluntary sports organizations, such as the Association for the Promoting of Open Air and Skiing Activities, also make their services available. The Association mentioned has five large open air establishments in the National Parks near the City. At each of these, there is a full time Sports Director whose task it is to help the Schools when they visit these establishments on open air days or campdays. At these establishments there are permanent ski trails and route finding tracks, as well as other facilities for training. The teacher who intends to go there with his class has only to order, say, practice three and four for the age group concerned and when he arrives with his class, everything is ready. The exercises which can be ordered are worked out by a specially-appointed group of teachers from each level of the schools, and are selected so that they provide a gradual increase in performance, are easy to set up and are entertaining. Each teacher receives a description of the exercises in advance so that he can prepare himself to lead the exercises. There are special grants for bus travel to the open air establishments or other training grounds, but these do not cover the whole cost so the pupils themselves must pay something.

Swimming instruction is given by a specially engaged instructor at each school and after school hours he teaches the non-swimmers. The City of Stockholm has 38 school swimming pools and six public ones and plans exist to provide 19 more for the school and six more for the public. This instruction is free and the City also pays for the travel expenses of pupils as well as the entrance fees to the public swimming pools.

During the calendar year 1961, 14,500 pupils took part in the elementary instruction, and about 70 teachers served in 102 swimming schools. At the annual Swimming Competition in deep water, which is obligatory in classes 6 to 9, the percentage who could swim in Spring 1961 was 92% for Stockholm as a whole, a figure which is probably too low.

There is special leisure time activity organized after school hours at every school for those interested in voluntary sports and gymnastics and other activities. Then the pupils are able to have their special interests catered to. The meeting places are provided free and the people in charge are remunerated by the City out of the State Grant. A Leisure Activities Advisor, appointed by the School Administration, is responsible for this work and he is helped by assistants. During the school year 1959 - 1960, over 14,000 pupils aged 12 and over took part in such activities, which as a whole, comprised about 40 different branches such as music, model-making, drama, radio technics, animal care, gymnastics, basketball, handball and so on.

If one looks at the statistical information, it will be observed that most pupils are to be found in the gymnastics groups, with music in second place, followed by typing and ball games.

Leisure occupations after School hours

Leisure time Group	Total members
Gymnastics	4,418
Music	2,088
Typewriting	1,606
Ball games	1,306
Other groups with physical activity	
Dancing	574
Fencing	76
Total pupils taking part	
Total in all groups	14,269
In groups with physical activity	6,766

Teacher Training

Physical education teachers in Sweden are trained at the Royal Central Gymnastic Institute (GCI). The course is spread over two 38-week years. About 65 percent of the students attending the institute already have a degree of some kind. There are about 25 on the staff, under the direction of principal Dr. Paul Hogberg.

The facilities of the Institute include a nearby stadium built for the 1912 Olympics and four gymnasia -- two each for men and women. These gymnasia have the traditional Swedish apparatus: equipment for climbing, wall bars around the gym, many tumbling boxes, and so on. There is also a swimming pool, an outdoor skating rink and field space for games. A forest near the Institute is used for orienteering, cross-country skiing and jumping.

The system of physical education taught at GCI is that generally agreed upon in the schools. The old Ling system is not used, although its underlying principles are still here. There are no progressive exercise plans; the scheme used builds on knowledge of physiology and anatomy.

RESEARCH

The Physiology Institute

This Institute, a division of GCI, is doing research in three main areas: physical education, aviation physiology and work physiology. Equipment available includes a treadmill, pressure chamber, animal experimentation equipment, whole body counter (costing $100,000) and facilities for blood and gas analysis and measuring body density.

B. E. Christensen's article "Research in Physiology of Work at the Royal Central Gymnastic Institute"[1] explains some of the research and results at the Institute. Here are a few excerpts:

"Especially through Docent P.O. Astrand's researches in this country we now have 'standard values' for certain categories. These have reference to children in good health and to young people of both sexes who are physically active. By this means we know the maximal amount of oxygen that a person can take up and transport per minute, varies with age, sex and size. We know through Dr. W. von Döbelen's researches that the difference between men and women with the regards to their maximal work capacity is practically eliminated if the work capacity is expressed as maximal oxygen uptake per minute and per kilogram lean body mass. The less physical work capacity of young, physically active women compared to that of men is thus primarily due to smaller size and larger amount of adipose tissue. The man student at GCI has on the average a fat content of about ten percent while the woman student has about twenty percent. The women students' larger amount of fat is naturally an instance of the normal difference between the sexes. According to Docent Astrand's discover there is very little difference in physical work capacity between boys and girls, up to pre-puberty. If the work capacity is determined per kilogram of body weight, there is practically no difference between a 10-year-old boy and a 20-year-old man.

1 Christensen, B.E. "Research in Physiology of Work at the Royal Central Gymnastic Institute". Tidskrift i Gymnastik. Stockholm: 1962. pp. 39-43.

"Through Docent Astrand's researches we have also a more thorough knowledge of the work capacity of certain "special workers". This refers to top athletes within different branches of sport, mainly in athletics, cross country skiing and middle distance running. Now we know that an exceptionally great capacity for transporting oxygen is characteristic of those who practice these branches of sport.

"Dr. Irma Astrand's researches have, to a large extent, increased our knowledge of the older people at work up to the age of about 65. Both women and men show a systematical decrease in normal physical work capacity with age and this decrease runs about parallel for both sexes. In a 65-year-old man or woman one can, according to these investigations, expect to find a physical work capacity that is 30 percent lower than that of a man or woman of 25. In this investigation, too, all the subjects were physically active either through heavy manual labour or through regular attendance at gymnastics for housewives. A selection of this kind is necessary, especially in an investigation on the physical capacity of adults, or else daily physical activity of various kinds and consequently different physical conditions might completely disguise a difference in physical work capacity that is due to different sex or age. In connection with this it might be interesting to know that the physically active housewives, who had been examined by Dr. Irma Astrand, showed greater work capacity and greater maximal capacity for oxygen uptake than a group of policemen from Philadelphia who had been examined by the same method!!!

"The above-mentioned investigations are troublesome and demand the opportunity of using all the necessary apparatus of a laboratory. On the basis of these results Irma and P.O. Astrand have, however, also worked out a simpler method which makes a relatively sure determination of physical work capacity possible without forcing the subjects to maximal effort. The bicycle ergometer, which has been contributed by von Döblen and which can be used even under the most unfavourable conditions, is one of the great uses for these investigations...

"The systematic studies on the effect of training that are now going on are also of general interest... The studies on the effect of training that we pursued...under the guidance of Professor Torgny Sjöstrand should be mentioned... They show that patients, who were formerly invalids, can be brought back to work thanks to systematic training.

"Research in aviation physiology and medicine, a special branch of work, is also carried on in this country...

"The part of physiology of work that is directed towards solving the practical difficulties within commercial and industrial life has for several years been located at the department for industrial physiology at GCI...the superintendent of which is Dr. N. Lundrgen... This department has in many respects made a great contribution for the benefit of Swedish economic life..."

GENERAL RECOMMENDATIONS

-- the teaching of orienteering in Canadian schools.

-- community use of school facilities, particularly the physical education facilities.

-- establishment of more recreation areas for community use.

-- encouragement of the teaching of winter sports in connection with physical education programs.

-- development of national research centre and a national training centre.

-- use of a system of graded awards for children and adults in various sports.

4. DENMARK

GENERAL BACKGROUND

The kingdom of Denmark, about 16,600 square miles, occupies part of the Jutland peninsula as well as a group of islands which divide the Baltic and North Seas. The physical surface of the country is uniformly low, with the highest of its rolling hills less than 600 feet above sea level. No portion of the land is more than 40 miles from the sea, and this maritime influence makes Denmark's climate milder than many other countries in the same latitude. The mean average temperature is about 45 degrees, ranging from a low of 32 in January to a high of 61 in July. Annual rainfall is around 24 inches.

Denmark's 5,000,000 population is about half urban, half rural. About one and a half million people are engaged in the fishing or agricultural industries. Of Denmark's land area, 90 percent is productive and 75 percent is actually farmed. Co-operatives have enjoyed much popularity among farmers.

As in Sweden, all but a very small minority belong to the Lutheran Church. The king must be a Lutheran.

PHYSICAL EDUCATION IN DANISH SCHOOLS

(Taken from a government pamphlet "Physical Education in Denmark" and reprinted with the permission of J. Johansson, State Inspector of Physical Education in Denmark).

Physical education is compulsory in all elementary and secondary schools, usually on a basis of three fifty-minute periods weekly. Under the Education Acts of 1937 and 1938, local councils are required to provide grounds for games and track and field. The gymnasium and sports ground must be available for the use of juveniles outside of school hours.

Physical training is not an examination subject, but an annual mark is given on the basis of efficiency and interest in various activities. Instruction is given in the schools by the normal teaching staff. Teachers study physical education as part of their general training; very few schools employ specialists. Advanced instruction in gymnastics and athletics is given at the Physical Training Teachers' College of Denmark (Denmark's skole for Legemsvelser) which offers a one-year course.

Teachers have a wide freedom in choosing their physical education curricula. They are not bound by any Ministry manual or detailed instructions on course content. Many feel this freedom has been a major factor in the progress of Danish physical education.

The Ministry's instructions are confined to a general outline of the purpose of teaching this subject and a brief guide to its implementation. This outline is laid down in the 1960 Teachers' Manual. Here are some excerpts:

"The object of physical education is, by means of varied physical exercises, to promote the physical health of the children by helping them to develop their bodies harmoniously, training their motor functions (nervous, muscular and articulatory systems), bringing them into good physical condition, and giving them good habits of hygiene; to promote the mental health of the children by letting them feel the pleasure of physical activity, and by exploiting the special potentialities of the subject for developing such qualities as the ability to co-operate, self-discipline, sense of order, initiative and self-reliance; to teach the children the importance of keeping the body in good condition and of using it properly, so that they are stimulated to continue physical training and open-air life after they have left school."

"The subject shall thus be not merely one in which the children acquire skills and enjoy recreation, but also one in which they gain experience and knowledge by which they can profit both while attending school and later in life."

"Importance is attached to versatility. In the first years of school, only the easier forms are to be practised, and the aim is that as time goes on, the pupils shall take the tests appropriate to their age for the School Athletics Badge. These are prescribed by the National Committee for School Athletics."

"Attention is drawn to the risks involved in throwing exercises."

"Athletics will be practised preferably in the warmer part of the out-of-doors season".

Swimming

"The aim is that the pupils should attain a general proficiency in swimming. Efforts should be made to ensure that they take one or more of the schools swimming tests as proposed in the current circular letters from the Ministry of Education."

"Where the school has access only to an open-air bath, the physical training periods in the bathing season should preferably be used for swimming."

"Where the school has access to indoor baths, from the 4th year of school (or other stage as laid down) one period a week may be used for swimming."[1]

1 This, however, should be on condition that at least three periods weekly are allotted to physical education.

"Since swimming periods involve a certain risk to the pupils, it is desirable that the teacher taking swimming should be a fully trained teacher of swimming. In any case, he must have a practical training in life-saving."

"It is desirable that the schools should use some half or whole days for cross-country and orientation exercises, sports meetings and winter sports. But here it must be a condition that all the children who take part are occupied."

Physical education in Danish schools includes gymnastics, games, ball games, athletics and - where conditions permit - swimming. What is done in these various activities is set out by Johansson:

Gymnastics

"The exercises shall include free-standing exercises, walking and running, apparatus work and games."

"In the first year, the children will be introduced to gymnastics mainly by means of exercises (with and without apparatus) that are in the nature of play and that suit their pleasure in movement and their urge to exercise. More formal exercises gradually replace these."

"The aim is, by means of these exercises, to train the children's feeling for good carriage and graceful and appropriate movements. The free-standing exercises must allow for proper warming up and general working of the body, and particular attention should be paid to giving the children an understanding of proper tension and relaxation, so that their movements are free and well co-ordinated. Small items of apparatus (bean-bags, balls, skipping-ropes, clubs, hoops, etc.) may be used."

"Exercises with apparatus shall include a suitable selection of heaving exercises, vaulting, agility exercises and balance exercises, arranged according to degree of difficulty."

"The fixed and the free apparatus included in the normal equipment of the gymnasium will be used for this."

"As early as possible, the pupils should be instructed in and help in standing by in most of the exercises with apparatus, so that the risk of accident may be minimized."

"Moreover, partly by handling the apparatus and partly by special exercises, they must be trained in the correct technique of some of the commonest movements of daily life such as lifting, carrying, pushing and pulling."

"Particularly in gymnastics for girls, it should be possible to use music in connection with the exercises."

"A varied selection of games that give exercise, and are appropriate to the various age-groups, shall be used."

"In an era of increasing mechanization and sedentary occupation it is necessary for the pupils to understand the importance of gymnastic training that can maintain the body in such a condition that it can cope with the physical requirements of everyday life, both at work and in sport, without difficulty. To help in attaining this understanding, the oldest pupils may practise a training programme that they can follow alone - possibly also when they have left school."

"The natural season for gymnastics is from mid-October to mid-April."

Ball Games

"The subject matter comprises primarily team-games, e.g. rounders, 'long-ball', 'M-ball', handball, volleyball, basketball, for boys also football, all according to stage and age."

"The pupils ought to learn something of several kinds of ball games."

"They should be taught training exercises, both technique and tactics, and actual games."

"The pupils ought to be given a proper understanding of the rules of ball games both in the letter and in the spirit."

"Ball games in school are preferably played in summer, and out-of-doors, from about mid-April to mid-October. Where conditions permit (a games hall, small teams in suitable gymnasiums), actual ball games may be included in the work of the winter season. If a school has a hall for ball games, it will be reasonable to assign one period a week for this for the senior classes.[1] Such a period might be split so that one half is devoted to gymnastics and the other to a ball game."

Athletics

"Athletics includes all the exercises for the School Athletics Badge in running (60, 80, and 100 m), jumping (long jumps, high jump, pole-vaulting), and throwing (ball, sling-ball, javelin and discus and putting the shot) and relay race."

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1 This should be on condition, however, that at least three periods per week are allotted to physical education.

Methods

"There are many factors to consider (e.g. the children's motor development, age, interests, intelligence, etc.), and since there are many possibilities within the prescribed limits, it is difficult to indicate a division of the subject matter according to age or stage without risk to the teacher's freedom to decide what methods to use."

"In the present plan, therefore, there is no collection of gymnastic tables, designed for the individual classes. Every teacher can find in the available literature sufficient exercises with suggestions for building up a progressive course."

"The teaching technique used must be adjusted to the various types of physical exercises, and be based on a knowledge of the standard of proficiency of the class."

"Some exercises, in gymnastics as in ball games and athletics, can be introduced by preparatory exercises, but these should as far as possible be of the nature of independent exercises, which stimulates the interest of the children."

"In most cases, the new exercise is first demonstrated by the teacher (or a pupil) and a brief oral explanation given, whereon the pupils themselves try it. The children's urge to imitate should be utilized as much as possible - first and foremost in the first years."

"The class is taught partly as a whole, partly in teams, and partly as individuals, and as safely as possible. Similarly, as many children must be occupied at the same time as possible, without increasing the risk of accident."

"In order to stimulate the interest of the children, the teacher may use various pedagogical means such as series of exercises in gymnastics with apparatus, badge tests in gymnastics, fitness tests, athletics and swimming tests, competitions and displays."

"If the teacher is to maintain an adequate check on the achievements of the pupils, some recording is necessary. This can also have the effect of stimulating the pupils. A warning must be issued, however, against using too much time for noting down results: this may be done, for example, while the pupils are changing."

"In dividing th class into teams for physical education periods, efforts should be made to see that these teams are not too big, and that all means in the way of apparatus and space are utilized to the full. The teacher should therefore have a plan for distributing the pupils among the various exercise

areas, and for how the teams shall change places. Here the teacher must take into consideration the risk that is involved in a special exercise (e.g. throwing)."

"Since the actual length of a teaching period is comparatively short, because of the time taken by changing and bathing, absolute orderliness and good organization of the period are necessary if the teaching is to be efficient and to be done safely. Every period, therefore, should be carefully planned beforehand, and in the out-of-doors season there must be an alternative programme ready in case of rain."

Gymnastic High School at Ollerup

This school was founded by Niels Bukh, often called "the founder of Danish primary Gymnastics". Bukh felt the aim of gymnastics should be "...to gather all young people, and thus serve the whole youth of the nation - or even better, the whole youth of the world." He saw gymnastics as a means of combining the ability of moving and the strength and command of the body into a "harmonious and beautiful bearing of erectness and freedom."

Bukh built this school with the voluntary assistance of Danish youths, particularly young farmers. The school is one of five or six folk high schools where leaders come from the smaller towns for five-month training periods. The courses include lectures and practical instruction in Danish gymnastics, free standing exercises, ball games, folk dancing, athletics and swimming. Also included are excursions to places of interest. Students have come from all over the world to attent this Gymnastic High School. Summer sessions for women and an international summer school for men and women (lectures in English) are held annually.

Facilities at Ollerup are extensive; the school has outdoor tennis courts and a new tennis hall in which tennis and badminton are played all year; a heated indoor pool as well as an outside pool; an athletic hall and two playing fields.

TEACHER TRAINING

As mentioned earlier, schools normally do not employ specialists in physical education. Emanual Hansen explains the philosophy behind this policy and other aspects of teacher training in his Sports in Denmark:[1]

"It will be clear...that the training of school teachers in physical training is in line with the training given in other subjects, and indeed teachers of physical training also teach other subjects. This is a practice rarely, or less consistently, followed in other countries, where teachers of physical training

1 Hansen, Emanuel. Sports in Denmark. Det Danske Selskeb. Copenhagen. 110 p.

are often special instructors. It is easy to see the great educational advantages of the Danish system. It is important that in a school some teachers at least should teach both ordinary school subjects and physical training. It thereby becomes more easily assimilated in the school curriculum, and its educational possibilities are better exploited. It is important in this connection that teachers of physical training should regard themselves first and foremost as teachers, and not just instructors in a special subject divorced from the rest of the curriculum. It is a great advantage to the teacher himself that his work can be spread over a number of subjects. A young teacher may for a few years, command the energy to teach physical training for many hours a day, but in the long run, it is both monotonous and exacting to teach this subject and nothing else. Contrarywise, it is a refreshing change to be able to switch from physical training to book studies and vice versa, and it is of importance to the teacher and to the school that he can, when he reaches a certain age, withdraw from physical training and devote himself to class teaching which makes less demands on his physique. At the same time, it must be admitted that the system has its drawbacks, particularly in the limit that has to be imposed on the duration of training. Physical training as a subject makes special demands on the teacher in regard to method and teaching technique, and thorough training must, therefore, take a long time. But the teacher who has to train for more than one subject can devote only a limited time to each, and for this reason the training of Danish teachers in physical training, in several respects, is less comprehensive than the training in countries that have retained the system of special instructors. Yet the system contains such valuable education features that scarcely anyone in Denmark would wish to see it changed..."

"Primary school teachers are trained at teachers' training colleges all over the country, some State and some private. The training course comprises every school subject, including physical training, and normally lasts for four years. The number of lessons in physical training is about 560. The curriculum comprises theory, practical exercises, games, and track and field athletics, and practice in teaching children large and small. The training colleges do not normally include swimming in the Syllabus, as few have swimming pools."

"But, while all primary school teachers are taught physical training, the time spent on it, in view of its many branches and the technical requirements, is short. For most teachers, destined as they are to teach in the country or in small towns, the training is adequate. But it is desirable that teachers who seek appointments in large towns should receive supplementary instruction, not only in physical training, but also in other subjects taught at primary school."

"This supplementary instruction is chiefly given, at two State schools, both in Copenhagen - Danmarks Laererhojskole (Danish Teachers' High School)

where most of the subjects concerned are taught, and Danmarks Hojskole for Legemsovelser (Physical Training Teachers' College of Denmark), which provides advanced instruction in gymnastics and athletics."

"Courses at the Teachers' High School normally take a year and students usually study one or two self-chosen subjects. Further annual courses in the same or in other subjects may be taken later."

"The one-year course at the Physical Training Teachers' College comprises about 1,400 lessons. The subjects taught are anatomy, physiology, physical-training theory (i.e. study and analysis of the exercises), history of track and field athletics, and the method and practice of teaching children in these subjects. Women students are also taught the use of music in gymnastic exercises and fold-dancing. The course closes with an examination. In view of the risk always entailed in the teaching of swimming, students pass a series of tests in speed over short distances, endurance, diving, and lifesaving. They must have passed these tests in order to qualify as certified swimming instructors.

"The Physical Training Teachers' College, besides internal facilities, possesses outdoor courts and fields covering 13½ acres. The building contains auditoria, a library, two gymnasia 36 ft. by 72 ft., two games halls 65 ft. by 150 ft., and a swimming hall with two pools 40 ft. by 80 ft., and 22 ft. by 40 ft."

"...Teachers of higher education are university-trained. Study in the faculty of philosophy comprises a major and minor subject.

Physical training may be taken as a minor subject, but not as a major subject only. The minor subjects in this case are either mathematics, physics, chemistry, and astronomy, or zoology, botany, geography, and geology."

"Study of the minor subjects is usually concluded in two years. The university subjects are anatomy and physiology with special reference to the physiology of exercise. Concurrently, students take the one-year course at the Physical Training Teachers' College already referred to."

"The major university subjects are the same as the minor subjects, but physiology is the one more widely studied. Students who take physical education as their major subject are given a special course in physiological laboratory exercises, plus a special study of a self-chosen section of physiology, based on original essays. An effort is made in the major-subject studies to enable students interested in scientific work to take up research in those branches of physiology which are of special importance to physical training."

The average age of people at the Teachers' College is about 26, with most having taught a few years. The state pays a salary to any substitute teacher who comes here. No examinations are held for those in the one-year course. There are about 200 students at the Teachers' College.

SPORTS ASSOCIATIONS

The main youth associations are affiliated with a Youth Associations' Advisory Committee. These groups include the Danish Boy Scouts, Girl Guides, YMCA Scouts, YWCA Guides, Voluntary Boys' Federation and the Children's Athletics group. These groups own about 250 camping sites and have access to many others.

Organized gymnastics and sport for young people over school age are chiefly provided by four large organizations: Danish Sports Federation; Danish Rifle, Gymnastics and Athletics Associations; Danish Gymnastics Associations; Danish Works Sports Federation.

The Danish Sports Federation embraces virtually all sports in its membership, including archery, badminton, basketball, boxing, canoeing, cricket, orientation, fencing, soccer, golf, gymnastics, handball, hockey, lawn tennis, rowing, shooting, skating, skiing, swimming, table-tennis, water polo, athletics, volleyball, walking, weight-lifting, wrestling and yachting.

Another interesting facet of the Danish sports scene is the existence of the Danish Youth Hostels Association and the Danish Rambling Club, both over 30 years old. The objectives of the former are to promote establishment of youth hostels, to supervise their administration, and to work out reciprocal arrangements with similar organizations in other countries. The second one, the Danish Rambling Club, aims to promote "rambling", to help young people to travel cheaply, and to assist young foreign visitors.

In 1955 there were 52,000 members of the Rambling Club. There were 140 youth hostels, with about 10,000 bed-accommodations. As Hansen says, "The movement has been of great benefit to young people...opening their eyes to cultural and historical points of interest at home and abroad."

RESEARCH

Physical education was advanced considerably in Denmark in 1909 when gymnastics was included in the syllabus for teachers in higher education, and a Chair in gymnastic theory was initiated. The Laboratory for the Theory of Gymnastics was established in 1918 and thus the University of Copenhagen was the first European university to study physical education as a scientific subject.

Dr. J. Lindhard (1870-1947), the first professor and head of the laboratory, endeavoured to evaluate the subject of physical education. His main contribution was in the area of the physiology of circulation and muscles. He did a great deal to examine the authenticity of many opinions pertaining to physical education. Lindhard retired in 1935 and was succeeded by Emanual Hansen and then by the present director, Dr. Asmussen.

There are two faculties which train teachers, that related to philosophy and the humanities, and that represented by mathematics and the natural sciences. The people who choose the former faculty train for two years at the Teachers' College and combine physical education with one other subject for teaching purposes. Lectures are, however, taken in anatomy and physiology.

If a potential teacher chooses the science faculty, he takes physical education as a major course. Again, the two-year course is taken, after which the students go to the Laboratory for the Theory of Gymnastics.

The main research at the Laboratory is concerned with problems of respiration and circulation, particularly the regulation of respiration. Extensive research is done into physiology of muscle, measures of strength, and effects of gaining weight on the cardiovascular system. The laboratory is extensive and well-equipped, including the Krogh bicycle ergometer, areas for gas and blood analysis, a strength-testing area and circulation room, a low-pressure chamber and a climatic chamber.

It should perhaps be mentioned that considerable interest in the schools is associated with the school athletic badges. Some 80,000 awards are given each year, 20,000 to adults. The school badges are available in running, jumping, throwing, high jump, javelin and discus, as well as in swimming.

GENERAL RECOMMENDATIONS

-- establishment of leadership training schools for people of post-high-school age in physical education as well as in other subjects.

-- development of more centralized organization of sports associations.

-- expansion of government aid to sports associations.

-- development of more indoor track and field facilities.

-- placement of physical education on the basic curriculum for all teachers.

-- creation of a centralized research institute.

-- creation of school athletic badges in various activities.

5. GERMANY

GENERAL BACKGROUND

Occupying around 136,000 square miles of central Europe, Germany has a diverse geography yet a fairly uniform climate. Southern Germany has elevated plateaux and mountain chains; northern Germany consists largely of low-lying plains. The mean annual temperature ranges from 48°F in the north to 54°F in the south.

Germany has many fertile valleys and much rich forest land (over a quarter of the total area is forest covered). About a quarter of its 70,000,000 inhabitants live in cities with a population of more than 100,000. The country boasts some of the world's most advanced agriculture and industry.

The German school system developed from the late 19th century with the Volksschule or elementary school for children from six to 14; the Mittelschule or intermediate school which offered a six-year course of practical and commercial subjects following four years of elmentary school; and various types of secondary schools which prepared pupils for entry into the universities or technical colleges.

Some liberal changes were made under the Weimar Republic, such as compulsory elementary schooling for all children. During the Nazi regime further changes were made in the school system, but the Federal Republic, established after World War II, reverted to a structure close to the Weimar system.

At the end of World War II the universities in Germany were faced with many problems, such as shortage of teaching staff and lack of buildings (many schools were destroyed in the war). Despite these difficulties, attendance at the universities increased rapidly; in fact, the demand became so great that Berlin created a second university in 1948, both to meet the growing demand and to counteract what many people felt was Communist domination over Humbolt University in the Soviet sector. Since 1947 German universities have continued to grow and have moved to establish broader contacts with the academic world.

COLOGNE SPORTHOCHSCHULE

Built in 1920 and moved to Cologne in 1947, the Sporthochshule accommodates about 800 students. It was remodelled recently at a cost of 15 million marks (around $3,750,000). Here are some of the facilities at this world-renowned school:

: Eight gymnasia, used by over 1,000 children from neighbouring schools, as well as Sporthochschule pupils. One gymnasium is entirely

for correctives. An adjoining area can be used for activities not involving too many people -- boxing, wrestling, weight-lifting and fencing. A large games hall is used for soccer, volleyball, field hockey and basketball. Another gymnasium is devoted chiefly to club activities. Yet another includes a tennis practice area and a soccer ball which lowers from the ceiling, used for practicing "heading". Various types of floor construction are constantly under experimentation.

Further facilities include:

: A six-storey central building.

: A track and field area and football field.

: An open air pool nearby.

: Six dormitories for students (45 per dormitory) and one for guests.

: A dining room, reading room, library and paper clipping room. The latter is used for completion of various sports tests.

: Locker rooms.

: Two small lecture halls (70 and 120 seats), where slides and movies may be shown, and one large lecture hall with 500 seats. This larger hall has a stage large enough for such activities as wrestling and boxing.

: Dancing area, with mirrors and an area set aside for taped music and piano playing.

: A music hall (music is an examination subject).

: A stage up to professional standards and extending outside.

: Outdoor gymnastics area for young children. Horizontal bars are set in the ground and a ramp allows the children to jump.

: Roller skating rink.

: Handball courts outdoors.

: Institute for Facilities which studies the construction of gymnasia, swimming pools and outdoor areas. Financial support comes from the Organization of German Sports Associations (D.S.B.), which has about five million members. Many hope that this institute will become an international academy for construction techniques for playing fields

and gymnasia. The institute has published books on the construction of indoor swimming pools; on fields for school sports; on planning for track and field facilities; and on minor games facilities, both indoors and outdoors. A journal called "Buildings for Sport and Swimming" is published every two months.

: Institute for Physiology, with extensive equipment for study in this area.

: Sports Medicine Institute, or Laboratory for Fitness Research.

MAX PLANCK INSTITUT FÜR ARBEITSPHYSIOLOGIE

An example of a centralized research institute is the Max Planck Institute in Dortmund. There are approximately 20 scientific workers in the Institute and approximately 120 clerical workers and assistants. The director of the Institute is Dr. Lehman. There are about 40 such institutes in Germany, specializing in different areas. The following are the main divisions of the Institute:

1. Noise Division (Dr. Jansen). Here the effect of noise on man is studied; the aim is to discover laws governing the effect of noise on physiological function. An acousticized Faraday room change is used for experiments.

2. Influence of Climatic Conditions Division (Dr. Wenzel). Two climatic chambers are available, in which the effects of extremes of temperature and humidity may be studied. A treadmill is in each chamber to study work under different conditions.

3. Vibration Division (Dr. Kohlmann). The effect of vibration on physiologic function of man is the main study here.

4. Psychological Division (Dr. Schmitke). The effect of work and stress on the psychologic aspects of man is the concern of this division.

5. Muscle Physiology Division (Dr. Müller). This division, in recent years, has become famous for its work with respect to isometric contractions. The original work of Hettinger and Müller was done here. Many of the original statements made by this division have subsequently been modified.

INDUSTRIAL ERGONOMICS

One other area of interest is that studied by Dr. Thor Hettinger, who is at present doing research in industry; the subject could be called industrial ergonomics. Dr. Hettinger was studying such matters as fatigue in certain jobs, prediction of success or fatigue in certain tasks, heat loss in jobs and ways of diminishing this, physical condition of workers, visual acuity and so on. His laboratory is very extensive. He had a room for the LPI (Leistungpulsindex) with an electrocardiogram, a bicycle ergometer set up for an increasing work load test, a room for psychological tests designed for specific jobs, a room for reaction time designed for various tasks, and apparatus for studying vasoconstriction and tenosynovitis in jack-hammer work and typing. In addition, there are physical rehabilitation areas where muscle weaknesses can be corrected, different types of showers to offset fatigue, and so on.

This applied work in industry by physiologists and doctors, very extensive in Europe, would appear to have relevance for the Canadian scene.

GENERAL RECOMMENDATIONS

-- establishment of a national institute to do research into construction of gymnasia, playing fields and swimming pools, and to make general information on these subjects available to the public.

-- more extensive research institutes, combining various areas of research.

-- development of industrial ergonomics.

-- introduction of European handball.

6. ENGLAND

GENERAL BACKGROUND

England is the largest and most populous portion of the United Kingdom, with an area of just over 50,000 square miles and a population of 43,000,000. Greater London has a population of approximately 9,000,000. The weather is often moist and foggy, although the overall annual average rainfall is little over 30 inches. Temperatures are not severe, ranging from a low in January of 40°F to a mean of about 62°F in July, the warmest month.

The Education Act of 1944 set the pattern of education for England and Wales. Compulsory education was to commence at age 5 with primary schooling to age 11 and secondary schooling from age 11+ to 18 with compulsory education until age 15+ (16+ after 1970). This education is free and provided through local education authorities. Secondary education was provided in three different types of schools -- grammar, modern and technical -- but since 1950 comprehensive secondary schools have been developed and these have combined the types of education offered in the previous three types. "Public" schools are schools for fee-paying pupils usually entering at 13+ and staying until age 17 or 18.

ORGANIZATION OF PHYSICAL EDUCATION IN ENGLAND AND WALES[1]

Schools

Physical education is part of the normal curricula in all schools and general teachers' colleges. The Ministry of Education requires that all schools that receive government aid must provide physical education for their pupils. Recreation courses are also usually included in educational institutions offering part-time and vocational education for young people and adults.

"It is necessary to remember that public educational institutions are provided, maintained and controlled locally, with financial assistance from nationally raised revenue and with the advice of the Ministry of Education. The Ministry is not responsible either for the provision of schools or for the prescription of the curriculum in any schools. The Ministry requires, however, that all schools which receive financial assistance from public funds shall provide for the physical education of their pupils, and it is concerned, through the inspectors of physical education and through its publications, to maintain a high standard in the schools. Physical education is not included in any public examination."

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1 Excerpts from Ministry of Education pamphlet, reproduced with permission. Other materials based on an interview with Mr. Sagar, Senior Staff Inspector, Ministry of Education.

Staffing of schools with physical educators, then, is the responsibility of the local education authorities, of which there are approximately 130. Buildings and design of same is also the concern of the local education authority, though there are certain regulations which the Ministry applies. These are broad statutory requirements such as court and area limits and minimum space requirements. A gymnasium is required in secondary schools with more than 160 pupils, plus paved areas and field space. For example, with a mixed school of 450 pupils, ten acres are required. The acreage of playing fields is calculated to accommodate 70 percent of the outdoor activities. Paved space accommodates the remaining 30 percent.

In the thirties, the only subject which had a set curriculum was physical education; the historic "Green" Syllabus, or "Syllabus of Physical Training for Schools", of 1933, was followed in Australia and New Zealand as well as in the British Isles. Now there is no set curriculum to be followed, and much is left to the individual initiative of the teacher. However, "The Ministry has issued two pamphlets, 'Moving and Growing' (1952) and 'Planning the Programme' (1953), under the general title of 'Physical Education in the Primary School'. The first discusses generally how children develop as they grow, their powers of movement and agility, how the school day can be planned to take into account their needs and limitations at different ages, and how different forms of physical education can be used to develop versatility and skill. The second contains detailed suggestions about planning a programme of physical education."

a) Primary Schools: Physical education is based on "natural activities" such as throwing, running, leaping, crawling and climbing. Small apparatus, such as balls, ropes and hoops, is used extensively, accompanied by an increasing use of climbing apparatus. Minor playground games and informal versions of national games are popular. Folk-dancing has diminished in use and dance of a more imaginative variety is being introduced. Wherever facilities permit, swimming is included in the curricula of the upper classes. One period a day is usually set aside for physical education, with the class teacher as instructor.

b) Secondary Schools: Gymnastics, games, athletics, dancing and swimming (where possible) are an integral part of most secondary school physical education courses. Outdoor pursuits such as camping, canoeing, sailing and field expeditions are growing in popularity. Time allotted for these activities varies from a daily period to three periods weekly.

"The normal games played in secondary schools are: boys' schools -- football (association and rugby) and hockey in the two winter terms, and cricket and tennis in the summer terms; girls' schools'-- hockey, lacrosse and netball in the two winter terms, and rounders, tennis and cricket in the summer term.

In boys' schools the organization of games and athletics usually lies in the hands of masters who have special competence in them. Frequently, however, the specialist master is responsible for coordinating the sports programme as a whole. In girls' schools the games and athletics are, for the most part, organized and coached by the specialist teachers concerned, with some help from other members of the school staff. At some secondary schools special facilities are available for games such as badminton, basketball, squash raquets, fives, and for rowing and swimming; swimming must usually be taken in local swimming baths but, recently, it has been possible to provide swimming baths in some schools."

c) Universities: "At the universities there is provision for games and sports of all kinds. Some universities have instituted departments of physical education and at Birmingham some form of physical education is compulsory for all undergraduates during their first year. At this university physical education can be taken as one of the subjects in an Arts Degree. It is not otherwise possible to take a degree in physical education in either England or Wales."

VOLUNTARY ORGANIZATIONS

Outside the schools, the organization of sports lies with numerous voluntary bodies. Usually the rules of the various games are laid down by a single national organization in each sport, but the control of local facilities lies with the individual clubs. Both the national organizations and the local clubs are entirely free from state control. This applies also to the regional organizations which bind the local clubs together and act as channels for local representation to the national organizations.

Several national organizations receive grants towards the cost of headquarters administration and national coaching schemes. Many grants go toward provision of playing fields and other recreation facilities by local authorities as well as by voluntary organizations.

The Central Council of Physical Recreation (CCPR) is a voluntary body which receives heavy state support. This group organizes courses for leader training in various branches of recreation, and works towards generally stimulating physical education and recreation. It includes representatives of all government bodies of sport and is financed by subscriptions and voluntary contributions as well as by the Ministry. The courses accommodate up to 200,000 people in a year. There are ten headquarters throughout the country and four national recreation centres in England and Wales and two in Scotland.

The London County Council in 1964, finished building a $7 million structure called Crystal Palace National Recreation Centre which the CCPR

will run. It will have some of the following facilities: track and field area, football field, three swimming pools, sports halls and cricket pitches with accommodation for about 12,000 spectators.

The much-publicized Wolfenden Report drew attention to the lack of athletic facilities in England and to the need to "bridge the gap" between school and post-school activities. In the last twelve months, a Minister, Lord Hailsham (now Mr. Quintin Hogg), was appointed to co-ordinate sport facilities, though no Ministry for Sport was created. However, more government money is being provided for sport. After parliamentary debate in May, 1963, increased expenditures were announced and a gradual build-up is planned over the next three years. Approximately three million dollars is available for voluntary associations. If a $60,000 structure is planned, up to $30,000 may be obtained from the fund.

Coaching schemes and the administration of sport are also being assisted through these developments. It is expected that regional meetings will be held to discuss the need of sport.

PLAYING FIELDS

A visitor to England's recreational facilities will be impressed by the number of playing fields available for public and school use. Despite the fact that London is one of the world's largest and most crowded cities, the number of fields for each school amazes most visitors. Even with this great number of fields, there are not enough to meet the demands created by almost half a million school children in London. The London County Council has endeavoured to maintain the number of fields associated with schools. Two areas are approximately 80 acres, one complex is 135 acres.

An example of the Council's work is the Morden Park Play Field, completed in 1955. These facilities were intended for the use of 8,100 children, but are now used by over 9,000. All changing and shower facilities are available on the grounds. The fields are used primarily for games, with basic skills being taught in the schools themselves. The grounds are never closed and thus are available for general use after school hours.

This one complex includes 17 soccer fields; six rugby fields; nine hockey fields, 19 netball and 15 cricket tables; the administrative and change areas. Equipment is provided.

Children are transported free of charge by bus for their half day of games. A whole school may use the facilities at the one time. All the class organization, tournaments and so on are taken off the teachers' hands. The teachers themselves officiate the games, because the English tradition has been that the

classroom teachers assist with games. However, some help is given on the technical side, as well-qualified physical education teachers are available; each centre has from three to six professional supervisors.

The situation in London is by no means typical, for most other areas do not have the problems of size and distance, but it is something that deserves study by highly urbanized communities.

Canadian schools have been criticized because of the lack of playing field space; one of the basic reasons is that Canadian legislation is permissive rather than mandatory as in England and Wales. Provincial and local administrators might study the Education Act of 1959, "The Standards for School Premises Regulations".

In Primary Schools, for example, the following paved area is required, and it must be laid on suitable foundations, be properly graded and drained.

	Number of pupils	Appropriate paved area (in square feet)
(a) Infant schools	Not more than 100 ...	3,200
	101 - 280	6,600
	281 - 400	11,100
	401 - 480	13,200
(b) Infant and junior schools...	Not more than 25	3,200
	26 - 80	4,500
	81 - 170	6,600
	171 - 280	12,100
	281 - 440	18,700
	441 - 480	24,200
(c) Junior schools	Not more than 140 ...	6,600
	141 - 280	12,100
	281 - 360	18,700
	361 - 480	24,200

On top of the paved area, the following are the statutory requirements for playing field accommodation in primary schools:

Number of Junior Pupils	Appropriate Area
Not more than 50	$\frac{1}{2}$ acre
51 - 120	1 acre
121 - 200	$1\frac{1}{2}$ acres
201 - 280	2 1/4 acres
More than 280	3 acres

The site of every secondary school must include a paved or hard porous area, suitable for lawn tennis, netball, basketball or other appropriate games, which must be laid on suitable foundations and properly graded and drained. The following are the requirements:

Number of Pupils	Appropriate area in square feet
Not more than 420	19,900
421 - 600	34,200
More than 600	34,200 plus 5,000 for every additional 150 pupils or part thereof.

For playing field accommodations for secondary schools, the following are the requirements:

	Number of Pupils aged 11 - 15 inclusive	Appropriate Area
(a) Boy's schools	Not more than 150 ...	4½ acres
	151 - 300	7½ acres
and thereafter for every additional 150 pupils or part thereof aged 11 - 15 years inclusive, the appropriate area shall be increased by		1½ acres

	Number of Pupils aged 11 - 15 years inclusive	Appropriate Area
(b) Girl's schools	Not more than 150	4 acres
	151 - 300	6½ acres
	301 - 450	8½ acres
and thereafter for every additional 150 pupils or part thereof aged 11 - 15 years inclusive, the appropriate area shall be increased by		1 acre

	Number of Pupils aged 11 - 15 years inclusive	Appropriate Area
(c) Schools for pupils of both sexes	Not more than 150	4½ acres
	151 - 300	7 acres
	301 - 600	10 acres

and thereafter for every additional 300 pupils or part thereof aged 11 - 15 years inclusive, the appropriate area shall be increased by ..... 3 acres

It is considered that one pitch of porous compound is equivalent to three turf pitches. The St. Ives' Turf Research Institute has done the technical work on which the Ministry's requirements are based. Redgra is the porous material most generally used. Cresta, a type of crushed granite, is used in Scotland, but has to be carefully laid. Soccer, for example, can be played on both surfaces and with football boots. Considerable attention in recent years has been given to the dual use of facilities, to encourage and provide facilities that may be used by the community as well as school children.

TEACHER TRAINING

Three-year specialist courses can be taken at any of about 20 men's and women's colleges. The general training colleges with physical education "wings" for men as well as Carnegie and Loughborough Colleges are Borough Road (London), City of Cardiff, Chester, County of Stafford, St. John's (York), St. Luke's (Exeter), St. Mary's (Twickenham), and St. Paul's (Cheltenham).

There are seven physical education colleges for women: Anatey (Staffordshire); Bedford; Chelsea (Eastbourne); Dartford: Lady Mabel (Wentworth Woodhouse); I. M. March (Liverpool); Nonington (Kent). The following general colleges with physical education "wings" provide three year specialist courses: Avery Hill; Bishop Otter; Derby Diocesan; Endeleigh R.C.; Neveilles Cross; St. Mary's and in Wales, Barry.

The recent Robbins Report on Higher Education in England recommended that training colleges should continue to provide a three-year course but should also provide a four-year course leading to a university degree. Further training may come in the form of one-term or one-year post-certificate courses. The latter courses usually provide general instruction, but there is some specialization (for example, one course is devoted entirely to dancing).

Refresher courses are provided by the Ministry of Education, various organizations and institutions (such as the Educational Development Association, the English Folk Dance and Song Society and the Lawn Tennis Association), and local education authorities.

Loughborough Training College

One of the outstanding teacher training institutions for physical education in the world is Loughborough Training College. Facilities include two gymnasia, a wrestling area, two squash courts, an indoor swimming pool with observation panels, an outdoor pool, extensive playing fields, areas for basketball and tennis and badminton, a theatre, and a pole-vault area.

Carnegie College

Carnegie College provides courses of instruction for men students in the principles, practice and organization of physical education. This work is concerned primarily with the teaching of athletics, games, gymnastics and swimming, these having the most direct application to school needs. The associated subjects are also studied; activities include open-air pursuits such as canoeing, sailing, camping and rock-climbing.

Five courses are available at Carnegie College:

1. For graduates of universities in the British Isles who are normally resident in England or Wales, a One-Year Course of Professional Training for Teaching (with specialization in physical education) leading to recognition by the Ministry of Education for trained qualified-teacher status. This course is also open to students from universities abroad.

2. For lecturers in Training Colleges and experienced serving teachers who already hold a first diploma in Physical Education, or have equivalent qualifications, the One-Year Course of Advanced Study organized in association with the University of Leeds Institute of Education. Work on this course is undertaken both at the College and in the University Departments of Anatomy, Physiology, Physical Education and Psychology.

3. For new entrants to the teaching profession, a Three-Year Course of Training for Teaching, with physical education as the Main Course (or Main Course to Advanced Level), organized jointly by Carnegie College and the city of Leeds Training College.

4. For serving teachers, a One-Year Supplementary Course leading to the Award of a Diploma in Physical Education.

5. For Commonwealth Bursars, and overseas students who already hold a teaching qualification, a One-Year Course leading to a diploma in Physical Education or an Overseas Certificate.

The Following is the course of study at Carnegie College:

1. Anatomy, Physiology and Theory of Movement

Anatomy and Physiology with special reference to those structures and functions of the body, a knowledge of which is required in studying the theory of movement and methods of physical education.

A survey of the tissues and body systems, the general anatomy and mechanism of joints, the anatomy of limbs and musculature of the trunk with special attention to muscle action.

A survey of the physiological systems of the body; the means by which they are co-ordinated, with special reference to muscular activity; the application of physiological principles to physical training, education and hygiene.

A study of movement and growth, the increase of physical efficiency through exercise, and the importance of scientific method for assessing practical procedure and the worth of new developments.

2. History, Philosophy and Principles of Physical Education

A historical survey: the Greek Ideal, the influence of the Middle Ages and the Renaissance period; modern conceptions of physical education abroad; conceptions in Great Britain, and the trends in school physical activities and adult recreation.

The general principles of physical education as an aspect of education; the study of movement; the psychology of play; the place of athletics, games and other activities in a physical education scheme; teaching techniques; educational gymnastics and lesson construction.

3. Athletics, Games, Swimming, Indoor Activities and Open-Air Pursuits

Practice and lectures in the main branches of physical education, in order that students may become competent exponents and have a good knowledge of suitable activities for all types of educational institutions. The practical work includes movement training, track and field athletics (all events), the major summer and winter games (cricket, tennis, rugby, association football, hockey), school gymnastics, swimming, national dancing (Scottish, Scandinavian and community dances), campcraft and lightweight camping. Optional courses include basketball, boxing, fencing, fives, Olympic gymnastics, water polo, canoeing, rock-climbing and sailing.

4. Teaching Practice

Secondary school experience organized in a number of comprehensive schools, grammar schools and county secondary schools with fully equipped gymnasia, arranged to suit each student's needs; demonstration lessons and visits to schools; practice in primary schools, involving the use of playground and indoor lessons with portable apparatus and small equipment; practice in teaching games, athletics and swimming. There is opportunity from time to time to teach in Boys' Clubs and in other centres providing recreational activities.

5. Remedial Exercise, Health Education and the School Health Services

School remedials concerned mainly with corrective exercises for boys with faults of carriage or foot defects that are not sufficiently severe to require clinical treatment.

Health education arranged to meet student's needs: a short revision course for qualified teachers; a tutorial course for students wishing to take the diploma in school hygiene of the Royal Institute of Public Health and Hygiene; for graduate students and others taking initial training, a full course of health education for school purposes. Also First Aid to the standard of the St. John Ambulance Society's certificate.

6. Principles and Practice of Education (For Candidates for a Graduate Certificate in Education)

The meaning and purpose of education, its main agencies, and a survey of the underlying principles and methods employed in the processes of learning and teaching; development of the child; personality and character with particular reference to adolescence; the curriculum; teaching practice.

Birmingham University

As mentioned earlier, Birmingham has a compulsory course in physical education for all first-year students. The University also makes provision for qualified students to study physical education as one of the subjects leading to a B.A. in Combined Honours. The Department of Physical Education is thus required to play a double role within the University. First it organizes many courses in physical education and recreation to meet the need and wishes of first-year students; it also provides academic and practical courses and examinations toward a degree. Neither role is entirely divorced from the other; members of staff who conduct the academic courses are also responsible for some of the courses in the general program. Those primarily responsible for the recreational scheme carry out practical and tutoring work with degree students. The gymnasium and other facilities are also used freely by any students or members of staff.

The staff of the Department also engage in research and during the last few years have contributed books and papers on the place of sport in society, on gymnastics and swimming, on the acquisition of skill and on the mechanical bases of physical performance.

Physical Education and Recreation for all Students

The Department of Physical Education was established in 1940 to cater to the recreative needs of 1,700 students. The physical plant included an equipped gymnasium, three squash courts, one fives court, changing rooms for men and women, two rooms for members of staff, and a remedial room. The exigencies of war and the emphasis placed by the government on physical fitness led the Senate of the University to enact a regulation requiring all students to attend a course in physical education during their first year at the University. This enactment has remained in force until the present day, but the Department's interpretation of the requirement and consequently the nature and scope of its work have changed fundamentally. The first courses were in "Recreative Physical Training". The programme soon expanded to include athletics, team games, racket games and swimming. It was discovered that about 25 percent of men and 40 percent of women entering the University could not swim. Many students were anxious to learn and welcomed the opportunity to do so.

Later still, courses were added in activities which were likely to be beyond the reach of many students because of expense or for other reasons. For most courses, no fee is payable and equipment is provided. In 1963-64 courses were offered to students in the following activities: archery, athletics, badminton, ballroom dancing, basketball, circuit training, cricket nets, dance production, fencing, folk dancing, golf training, judo, lawn tennis, Olympic gymnastics, outdoor pursuits, riding, roller and ice skating, squash rackets, swimming, table tennis, trampolining, underwater swimming, weight training. Arrangements were also made for participation in netball, lacrosse, hockey, association football, rugby football, cross country running, cycle racing, rowing, sailing, and weight lifting.

In addition to these courses in or near the University, the Department organized a course in skiing in Scotland during each Easter vacation, and courses in camping, canoeing, sailing, mountaineering and underwater swimming at Coniston every summer. About 80 students enroll for these courses each year.

The Department helps the students' clubs in games and sports with coaching, officiating and advice whenever requested.

This programme requires several staff members; the original establishment of a Director of Physical Education and one assistant has been expanded to include, beside the Director, nine lecturers, as well as many visiting staff members.

Physical Education as a Degree Subject

The degree of B.A. in Combined Honours consists of the study of two subjects concurrently in all three years. Physical Education may be chosen as one of these subjects and the other must be chosen from the following:

Ancient Greek	French	Psychology
Modern Greek	German	Philosophy
Latin	Italian	Music
Archaeology	Russian	Theology
History	Spanish	Mathematics
English	Geography	

All subjects are chosen on the advice of the Senior Tutor. The combination of Physical Education and Psychology is specially co-ordinated.

Through essay work and practical movement analysis, there are opportunities for students to work on their own. They are encouraged to make good use of the University's extensive library facilities and the Department's apparatus for detailed analysis of movement and skilled performance; an extensive library of film-loops together with special projectors and cinescopic tracing apparatus is available for this purpose. Tutorial work and seminars figure prominently in many of the courses and students are encouraged to formulate and express their views on vital issues in physical education and recreation.

In addition to lecture courses, tutorials and seminars, students are required to gain experience in a number of practical activities. Here are some examples: Men -- gymnastics, association or rugby football, cricket, lawn tennis, basic swimming, advanced swimming, athletics, folk dancing. Women -- gymnastics, netball, hockey, modern dance, basic swimming, athletics, lawn tennis.

The gymnastics course, although compulsory, is not examined. Each of the other prescribed courses terminates with a practical examination. Students choose other practical work after consultation with their tutors. Individuals may broaden or deepen their study of physical skills. It is possible, for example, to emphasize the study of dance and keep the study of games and sports minimal, or vice-versa. The supplementary practical work is assessed but not formally examined.

Two vacation courses are held in conjunction with the programme for the general recreation of students. In their first summer vacation, students of physical education are required to attend a course in campcraft, dinghy sailing and mountaineering at Coniston. In a subsequent year these students are encouraged to attend one of the Department's Easter skiing courses.

A member of the faculty at Birmingham has been studying government involvement in sports programs. Here are some features found interesting in this study:

-- extensive sports federations and their significant social role;

-- assistance to governing bodies in various sports to develop clubs; (The scarcity of clubs, he feels, is the basis of sport breakdown in Britain in post-school years. The school-leaving group is the biggest challenge.)

-- the technical and advisory services that are available through institutes;

-- municipal sports offices that are devoted to the leisure activities of people in the area, (These are particularly effective in Germany, The Netherlands, Stockholm, Finland, and Switzerland.)

SCHOOLS

Because of the lack of a set curriculum and the dependence on the initiative and intelligence of the individual teacher, it would be impossible to draw general conclusions about the schools. All the schools visited were under the jurisdiction of the London County Council and could not be classified as typical, though they afforded a considerable range.

The following points should however be made:

1. The Cave-Southampton apparatus was in evidence in all schools and is recommended for consideration by all elementary and secondary schools. The apparatus is set against the wall, but in less than a minute it can be rotated away from the wall to allow for a wide range of activities - hanging, climbing, vaulting, heaving, balancing, jumping and so on.

2. The core of the elementary program and a large element of the secondary program, is basic movement or educational gymnastics. Books have been written defining both terms; a few words scarcely suffice, other than to say that the child learns certain basic movements and how to accommodate his own body to changes in position, space and stress. All elementary teachers, in particular, should have instruction in these methods.

3. The London County Council has experimented with a 20' x 8' swimming pool, complete with heating and filtration units, made of wood with plastic covering. It was used in an ordinary classroom with seats removed. Normally, these pools are 25' x 8'. The temperature is 80° to 84°, the depth is 12" to 27". The cost is approximately $4,500.00 complete with heating and filtration units. Use of a pool of this size has achieved wonderful results with elementary school groups. The approach to instruction is relaxed, as the element of danger has been virtually removed. It is planned to put in about twelve such pools a year. This development has considerable relevance for the Canadian scene.

4. Participation by all pupils in sport was stressed. In addition to normal physical education periods per week, efforts have been made to maintain half a day each week for sport for the whole school, on school time. This system is in adoption in most British Commonwealth countries, and in Australia and New Zealand in particular. The efforts of the London County Council with respect to playing fields is significant in this regard.

RESEARCH

There is an apparent lack of co-ordination of research efforts in the fields of fitness and physical education. Independent studies are being conducted by Drs. Edholm and Whitneg at the National Research Council, by Mr. J. Jeffrey at Loughborough College, by Graham Adamson at Leeds University, Mr. W. Steel at the University of Manchester, A.D. Murrow, Barbara Knoff and D.D. Molyneux at the University of Birmingham and P. C. McIntosh of the London County Council, to mention a few. The research has been diversified and includes historical and sociological aspects, but funds are limited for assistance and the efforts are mainly individual.

GENERAL RECOMMENDATIONS

-- an increase in number of advisors or inspectors in local areas.

-- development of realistic minimal requirements for area of fields, payment and gymnasia in proportion to school population.

-- development of more playing fields for school and community use.

-- creation of a national recreation centre.

-- establishment of more centralized facilities for national and international sport.

-- financial assistance from the Federal Government for buildings as well as programs.

-- development of small inexpensive swimming pools for elementary schools.

-- increased emphasis on elementary school physical education, with better training in educational gymnastics and basic movement.

-- increased intramural and interschool competitions.

-- development of more after-school clubs.

SUMMARY OF RECOMMENDATIONS

After studying physical education and recreation in the countries visited, the authors feel that many European ideas could beneficially be applied in Canada. Here are some features that have met with success in Europe and could be useful for Canadians.

- The establishment of a national training centre for recreation leaders and coaches; a federal training camp for athletes and representative teams; a national research institute in physical education and sports medicine; another national research institute to study present and required facilities. It would be possible, and perhaps profitable, to combine these four centres into one large complex.

- The creation of a sports secretariat for all of Canada. Paid secretaries would organize and co-ordinate the various sports associations and recreational groups. Their duties would include dispersal of research information and establishment of liaison with other countries.

- Initiation of an awards system for adults and children, and greater promotion of provincial and national competitions for both age categories.

- Development of a system of coaches paid by the federal government and working on a nation-wide basis (at least in the major sports).

- The introduction of two European sports - orienteering and European handball - to Canadians, and active promotion of both activities.

- The provision of extensive playing fields for school and community use. More provision could be made for outdoor gymnastics and indoor track and field.

- The launching of a national study aimed at the development of outdoor facilities that would encourage Canadians to make use of their scenic terrain. Such facilities could include camping areas, hiking trails and youth hostels.

Several features apply particularly to schools:

- Provincial and national sports schools for children should be encouraged.

- Realistic provincial standards must be developed for minimum requirements for playing fields, pavement and gymnasia.

- There should be a greater emphasis on elementary school physical education, with more concentration on educational gymnastics and basic movement.

- Small, inexpensive swimming pools should be developed for elementary school use.